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ARTICLES

Parth Shah
The Option Clause in Free-Banking Theory and History:
A Reappraisal

Frank Shostak
In Defense of Fundamental Analysis:
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Jacqueline R. Kasun
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NOTES and REPLIES

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BOOK REVIEWS

George Reisman, *Capitalism: A Complete and Integrated Understanding of the Nature and Value of Human Economic Life*, reviewed by Alexander Tabarrok; Karen I. Vaughn, *Austrian Economics in America: The Migration of a Tradition*, reviewed by Robert B. Ekelund, Jr.

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Articles

Parth Shah
The Option Clause in Free-Banking Theory and History:
A Reappraisal 1

Frank Shostak
In Defense of Fundamental Analysis:
A Critique of the Efficient Market Hypothesis 27

Jacqueline R. Kasun
Government Family Planning: Effects and Incentives 47

Notes and Replies

Richard Vedder
Statistical Malfeasance and Interpreting Economic Phenomena 77

Lowell Gallaway
Some Austrian Perspectives on Unintended Consequences 91

Harold Demsetz
Block's Erroneous Interpretations 101

Yuri Kuznetsov
Fiat Money as an Administrative Good 111

Book Reviews

George Reisman, ***Capitalism: A Complete and Integrated Understanding of the Nature and Value of Human Economic Life***
Reviewed by Alexander Tabarrok 115

Karen I. Vaughn, ***Austrian Economics in America: The Migration of a Tradition***
Reviewed by Robert Ekelund, Jr. 133

VOLUME 10, NUMBER 2 **1997**

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The Option Clause in Free-Banking Theory and History: A Reappraisal

Parth J. Shah

Banks under a free-banking system, like banks with fractional reserves under any other system, are susceptible to runs. Free-banking theorists maintain that the option clause would be one effective means of dealing with runs on banks. The option clause, printed on banknotes, would allow banks to defer redemption of their notes provided they pay interest for the period of deferment. The clause would enable banks to protect their liquidity in the face of an unexpected increase in demands for redemption, and allow them time to adjust their portfolios. To make the clause notes acceptable to the public, banks would likely promise to pay interest at a rate higher than the market rate for the period of deferment. This penalty rate would dissuade banks from misusing the option clause. The clause therefore could serve as a crucial stabilizing mechanism for a free-banking system.

Historically, eighteenth- and nineteenth-century Scotland (White 1984), Sweden (Jonung 1985), and Canada (Schuler 1988) serve as examples of free-banking systems that have employed option

Parth J. Shah is assistant professor of economics at the University of Michigan, Dearborn. I would like to thank the students of my monetary theory class for their insightful questions about the workings of the option clause. They were the inspiration for this paper. Detailed comments on an earlier draft by George Selgin are gratefully acknowledged. Leland Yeager helped make the paper more readable. All remaining errors of substance and style are my own doing.

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clauses. Among the three, the Scottish free-banking experience furnishes the most detailed information on the use of the clause (Dowd 1988, 1991; Gherity 1995). In Scotland, the clause was first adopted in 1730 by the Bank of Scotland to protect itself against "note duels" initiated by its new rival, the Royal Bank of Scotland. It was, however, outlawed in 1765.[1] Despite its short duration, the Scottish experience is generally cited as an illustrious example of the operation of the option clause in a free-banking system.

Modern free-banking theorists who view the overall Scottish experience as exemplary, consider the option clause a desirable market solution to the problem of unexpected demands for redemption (White 1984, pp. 28–29; Selgin 1988, pp. 161–62; Selgin and White 1994, p. 1726; Dowd 1988). Cowen and Kroszner (1989) and Sechrest (1993, pp. 79–93; 1988) have been skeptical in interpreting the Scottish experience as that of "genuine" free banking.[2] They do, however, share with the previous group the view that the option clause was an important, effective, and desirable innovation. There seems to be a consensus among the free-banking theorists on both issues: one, of the historical usefulness of the option clause in protecting the Scottish banks from runs and "note duels," and two, of its desirability in any future free-banking system as a stabilizing mechanism.[3]

Despite the consensus, a description of the exact working of the option clause either theoretically (logically) or historically is missing. A focus on the mechanics of the option clause raises doubts about its alleged historical usefulness and its desirability in any future free-

[1]Even though the option clause was outlawed in 1765, the free-banking system in Scotland lasted until 1844.

[2]A list of skeptics should also include Rothbard (1988). But he neither discusses the option clause nor advocates free banking.

[3]A notable exception is Yeager (1993). In his review of Dowd's *Laissez-Faire Banking*, Yeager raises concerns about the workings of the option clause. Gherity (1995) evaluates the Scottish experience with the option clause using contemporary magazines and newspapers. He does not deal with the logic of the operation of the option clause.

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banking system. When one tries to work out what exactly happens after a bank invokes the clause—the mechanics of the clause—several questions arise that the proponents have so far left largely unanswered. How would a bank distinguish notes presented for redemption from ones that were not? Would invocation of the clause apply only to notes or also to deposits? Would the bank refuse conversion of deposits into notes? If the bank allows customers to convert their deposits into notes, wouldn't all customers convert to earn the penalty rate of interest? Would the bank then be compelled to pay the penalty rate on all its notes and deposits? In order to earn that rate, people would have to hold on to the notes and deposits. What would they then use to carry out transactions?

An understanding of the mechanics of the option clause brings the costs of using it into sharper focus. These costs must then be balanced against the benefits of the clause.

Benefits of the Option Clause

The origin of the option clause points directly to its use in making "note duels" ineffective, thus largely eliminating a potential source of instability in a free-banking system. When a rival bank presents large amounts of notes for redemption, exercise of the clause would foil its attack. Moreover, anticipation of its use would prevent any rival bank from even attempting a note duel.

The clause elicits a stabilizing response not just from rival banks but also from the public. Dowd (1991, p. 763) argues that the clause would "reduce the pressure on the public to participate in bank runs, and make bank runs both less likely and less damaging (to everyone concerned) if they do occur." Without the clause, any strong fear of a bank run would induce noteholders to start a run as they would suffer losses by not being first in line. The option clause, in fact, gives "an interest 'bonus' for *not* being first in line" (Cowen and Kroszner 1989, p. 5). If others demand redemption and force the bank to invoke the clause, the noteholders back in line would earn a penalty rate of interest. "Hence, the option clause helps to convert speculative demands for redemption from the destabilizing force

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they are under full convertibility to a stabilizing force that protects the banks' reserves when they are run down" (Dowd 1991, p. 764).

By aiding individual banks in handling runs on their base money, the option clause also contains a bank run from spreading to other banks—the contagion effect. Banks' exercise of the clause prevents any system-wide liquidity crisis; bank runs do not turn into banking panics. The clause therefore diminishes the need for a lender of last resort.

Use of the clause also strengthens the bank's liquidity position by a process that has been overlooked in the literature. Notes issued by the bank that has invoked the clause would bear a penalty rate of interest. But given the difficulties in calculating interest at each transaction, those notes would not circulate freely as media of exchange. People would hold on to those notes to earn interest and the bank would enjoy reduced demands on its reserves. The bank would also experience a more favorable clearing against other banks at the clearinghouse, since its notes would be held and not passed on to the customers of its rival banks. Notes of the rival banks would be in use as before, so the bank would acquire more than the usual quantity of them. By redeeming those notes, it would be able to acquire specie from other banks in the system. This would help strengthen the bank's liquidity position.

Henry Meulen (1934, pp. 77–81) argued that the use of the option clause would lead to more efficient financial intermediation by the banking system. The clause would allow banks to replace the specie in circulation by paper, and would enable banks to further expand credit by releasing funds tied up in reserves.[4] By reducing the threat of sudden demands for redemption, the clause would permit banks to hold proportionately less specie, or to expand their liabilities proportionately more.

Dowd (1991) contends that the clause plays a stabilizing role in

[4]One is struck by the similarities between Meulen (1934) and Schumpeter (1955) on the role of bankers and credit creation in economic development.

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the market for "gold bills," which are promises to pay gold in the future. Banks would initially demand gold on the spot market to meet the large redemption demands.

> As the demand for spot gold continues to rise, the price of [gold] bills would fall to encourage holders to lend it and to discourage spot demands. . . . If it continued to fall and banks had the option clause, there would come a threshold point at which banks would suspend convertibility. The falling price of bills implies a rising gold interest rate, and the banks would suspend when that interest rate began to increase beyond the interest rate they would have to pay if they suspended the convertibility. Once that point has been passed, the banks could make a profit by suspending and effectively borrowing from the public at a fixed interest rate (i.e., the compensatory rate they would have to pay to noteholders), and then lending out their gold reserves. The public would be able to calculate when the banks would intervene, and rational speculators would appreciate that this intervention would almost certainly stop the price of gold bills from falling further. . . . [T]he banks' anticipated intervention when bill prices hit the threshold point ought to be more than sufficient to break the price fall. The bear speculators would almost certainly cut and run before the banks intervened, and the price of gold bills would fall to normal. It would be the threat of intervention, rather than the intervention itself, that would stabilize the market. This shows how effective option clauses can be even if they are never invoked. (Dowd 1991, pp. 764–65)

The effectiveness of the clause in reducing the threats of note duels, bank runs and panics, and adverse speculation in the market for gold bills leads Dowd (1993, p. 25) to consider the clause as one of three distinctive features of "a highly sophisticated free-banking system." He further maintains that the theoretical advantages of the clause are borne out by the Scottish free-banking experience before

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1765 (1988, pp. 330–31). In their survey article on free banking, Selgin and White (1994, p. 1729) conclude that the option clause is a "type of run-proofing" contractual arrangement.[5]

Incentives for Being First in the Redemption Line

The option clause, as the proponents maintain, allows for "orderly suspension" and lessens the need for noteholders to be first in line during any liquidity crisis. It actually pays an "interest bonus" for not being first in line. These incentives are crucial for the alleged benefits of the clause.

The incentives for not being first in line must be counterbalanced by two other concerns: one, the default risk, and two, the price of "waiting." Notes on which the clause is invoked would earn an interest compensation, but payment of the principal or the interest is not guaranteed. The clause does not promise that the bank would not declare bankruptcy during the deferment period. In fact, by invoking the clause, the bank has already signaled difficulties regarding its portfolio. Noteholders must then weigh the prospects of the bank's closure—the default risk—against the promise of interest payment.

Moreover, the whole of the interest payment is not a "bonus" to noteholders. They would have to wait for a period of time before receiving the specie. The price of "waiting" is generally positive—specie today is worth more than specie later. The market rate of interest can be taken as reflecting the price of waiting. So only that part of the interest payment that is more than the market rate of interest is a "bonus" to noteholders.

Noteholders would take into account the default risk and the price of waiting in deciding whether they want to be first or last in the redemption line. The sum of the default risk premium and the market rate of interest (the price of waiting) must be smaller than the interest rate offered on the clause, in order to keep noteholders

[5]For their recent statement of support for the clause, see Selgin and White (1996, pp. 91–92).

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away from the line. One could know the market rate of interest and the clause rate, but the default risk premium is determined subjectively by individual noteholders. In light of these issues, it is not obvious that the clause would always dissuade noteholders from ever being first in the redemption line.[6]

Mechanics of the Option Clause Use

The proponents of the clause do not describe what chain of events actually occurs after it is invoked. To understand the mechanics of the clause or the logic of its operation, it is instructive to consult some actual experience of its use.

Banknotes Turn into Bonds

Consider first the actual text of a typical option clause used in Scotland: "pay the bearer one pound sterling on demand or, in the option of the Directors, one pound sixpence sterling at the end of six months after the day of the demand & for ascertaining the demand & option of the Directors, the accomptant & one of the tellers of the Bank are hereby ordered to mark & sign this note on the back of the same" (Checkland 1975, p. 67; printed on Bank of Scotland notes, capitalization adjusted). This description indicates that the typical deferment period on the clause was six months with an interest payment of 2.5 percent (annual rate of 5 percent). It also tells us that the notes on which the clause was invoked were marked and signed individually.

The text does not tell us whether the notes on which the clause was invoked were returned to the holders or kept by the bank and returned with interest at the end of the deferment period. In any case, the notes were effectively turned into interest-bearing bonds. "Calculating the gradual accrual of interest on a stamped note would entail

[6]As will be discussed later, the option clause was rarely used to suspend convertibility of all notes as envisioned by its proponents. Banks used it selectively against particular redemption demanders. In that case, the public had the incentive to be first in line because that would start early accrual of interest.

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transactions costs probably disqualifying it from continued use as an ordinary medium of exchange. . . . [T]he note would disappear as part of the active circulating medium" (Yeager 1993, p. 322). As argued earlier, this would help the bank achieve favorable clearing at the clearinghouse against other banks. By the same token, the noteholders would begin to use other banks' notes as media of exchange, and the invoking bank would lose its share in the market for banknotes. This could turn out to be a permanent loss if the bank's customers decide to continue with other banks' notes. The cure could become worse than the disease.

Yeager (1993, p. 322) also raises concerns about the macroeconomic consequences of whether and how the sudden increase in the demand for other banks' notes would be met. Alternatively, one must consider the macroeconomic consequences of the sudden fall in the quantity of transaction media. Invocation of the clause turns banknotes into bonds, thus effectively removing them from their use as media of exchange.

Announcement Effect

A bank's exercise of the clause serves as a public announcement of its liquidity problems. In the old days, the announcement might not have spread too far from its headquarters, but today it would be an invitation to all its noteholders to make a run—a run, not to redeem their notes for specie ("note run," as conventionally labeled), but to convert the notes into bonds ("bond run"). They would run to get their notes "stamped" as quickly as possible to trigger the accrual of interest.

The bank can avoid this "bond run" if it simultaneously announces that *all* outstanding notes would accrue interest. The bank then converts its non-interest-bearing liability (notes) into an interest-bearing liability (bonds). In other words, the bank reborrows from its noteholders the full amount of its note liability at the penalty rate of interest. The size of this borrowing may or may not be optimal. The announcement effect of the use of the clause does not allow the bank flexibility in choosing the optimal amount on which to pay the penalty

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rate. It is compelled to pay that rate on all its outstanding notes.

Yeager rightly observes:

> Modern conditions differ from those of eighteenth-century Scotland. Banks in a temporary liquidity bind have better opportunities for raising funds, as by borrowing on the interbank market, selling liquid securities, and attracting deposits by increasing the interest rate offered. The possibility of obtaining semi-forced loans from noteholders is less important than it once might have been. (1993, p. 322)

Note Runs Turn into Deposit Runs

A note run is an attempt to convert notes into specie, and a deposit run is an attempt to convert deposits into notes. In a free-banking system with private issue of notes, a deposit run generally does not present any significant problem; banks could easily change the form of their liability from deposits to notes. Ultimately what matters is the size, not the composition, of banks' liabilities.

A bank's use of the option clause to control a note run would most likely create a deposit run. The uncertainty about the bank's soundness that caused the note run would also infect its deposits, since people would not want to hold a suspected bank's liabilities in any form. They could withdraw their deposits either by transferring them to other banks or by converting them into notes (which would then become bonds). The transfer of deposits to other banks would lead to severe adverse clearings at the clearinghouse, eventually increasing demands for specie by the other banks. The clause would probably not help the bank at the clearinghouse.[7] If people convert their deposits into notes, the bank would incur the costs of printing new notes and of "stamping" them. The bank could avoid these costs, and thereby the deposit run, by agreeing to pay the penalty rate on both notes and deposits.

[7]The literature is not clear about whether banks would be able to exercise the clause against other banks at the clearinghouse or whether they did so during the Scottish episode.

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The bank ultimately ends up suspending redemption of all its liabilities and paying a penalty rate on them. If the bank had borrowed funds from somewhere else, then it could possibly have met the crisis by reborrowing less than its total liabilities. However, the clause compels it to reborrow the full amount of its liabilities at a penalty interest rate. It is an all-or-nothing decision; the bank cannot make adjustments at the margin.

The proponents seem to think that after invoking the clause and thereby containing the crisis, the bank would continue to carry out its business as usual.[8] But the logic of the clause would actually require the bank to suspend its transaction services. This suspension puts its customers at great inconvenience by requiring them to find substitute media of exchange on short notice.

Payment of Interest on the Option-Clause Notes

How does a bank actually pay interest at the end of the deferment period on the notes on which it had invoked the clause? The Bank of Scotland was supposed to have paid interest to its noteholders at least three times for the suspensions in 1704, 1715, and 1728. Details on these payments are difficult to find. In the absence of branches, collection of the payment must have been a rather difficult task for noteholders, unless they were located relatively close to the Bank. The overall transaction costs in paying the interest seem substantial in comparison to the average amount of interest payment involved. The costs to the bank are of verifying the notes, counting them, and calculating interest; costs for the noteholders are of safe-keeping of the notes, and then of the travel to the bank. To put some reasonable numbers on this scenario, suppose that an average noteholder with £100 of notes would earn interest of £2.50 for a six-month deferment at 5

[8]In discussing the difference between a bank "holiday" and a limited "restriction" of the type of the option clause, Selgin (1993, p. 358) maintains that "a bank restriction permits the continued use of bank money—checks or notes—in payments, whereas a holiday shuts down the bank-money payments mechanism entirely."

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percent. How favorably does this sum compare with the transaction costs?

Moreover, noteholders (or rather bond holders) would have little incentive to present notes (bonds) to collect interest payment. The notes earn above-market interest, and customers would certainly have found other transaction media during the deferment period. How would the bank "de-stamp" the notes? Why would the customers convert the bonds back into notes?

All these practical problems with the workings of the clause lead one to inquire about the details of its operation during its historic use. Modern free-banking literature is rather silent on the mechanics of the clause in Scotland; it merely asserts its historic usefulness. Was the clause ever actually used as intended by its modern proponents?

The Option Clause in Scotland

The Scottish parliament chartered the Bank of Scotland in 1695 with a legal monopoly in banking and note issue. The monopoly powers expired in 1716 and the business of banking became open to new entrants. The Royal Bank of Scotland acquired its charter in 1727, and from the first day both banks "opened a brisk duel in which the combatants used each other's notes as missiles" (Munro, quoted in White 1984, p. 25). The Royal Bank collected Bank of Scotland notes against its own and then presented them for redemption. The Old Bank—the Bank of Scotland—suspended convertibility for eight months to put its finances in order. During this time, allies of the Royal Bank brought a suit against the Old Bank for its failure to honor the promise to pay specie. "After much legal wrangling the note holder's right of 'summary diligence' or immediate payment on Bank of Scotland notes—a right stipulated in the bank's charter—was upheld" (White 1984, p. 26). In response to this new legal environment, the Old Bank for the first time inserted an option clause on its notes in 1730.

The innovation of the option clause was due to a legal and not an economic necessity. Beginning with the first run in 1704, the Old Bank

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had acted as if it had the option clause. The Bank suspended convertibility and "set an important precedent by announcing at the time of suspension that all notes would be granted 5 percent annual interest for the period of the delay. . . . The same policy was adopted for the eight-month suspension following a run during the civil unrest of 1715, and again for the eight-month suspension of 1728" (White 1984, pp. 25–26; see also, Gherity 1995, p. 718). The introduction of the clause in 1730 simply legalized what had been a standard practice.

The legal-necessity interpretation of the origin of the option clause gets further support from the case of the Banking Company of Aberdeen. It was established in 1747 and did not include any option clause on its notes (Gherity 1995, pp. 717–18). It suffered a liquidity crisis as it had greatly expanded its note supply. As the bank suspended convertibility, a noteholder petitioned for "summary diligence." The court denied the petition on the grounds that summary diligence "was enforceable on bills but not on promissory notes such as bank notes" (White 1984, p. 28). The court pointed out that the charter of the Bank of Scotland specified summary diligence on its notes but that requirement did not automatically extend to other banks. In Scotland, according to the court, all banks but the Bank of Scotland could legally suspend convertibility without an option clause. This also explains why no other bank included the clause on its notes until the 1750s.

Gherity, who has consulted contemporary sources, states:

> From 1730 until 1752, the Bank of Scotland's notes were the only ones bearing the option clause, and it remained uninvoked. At that time, two banks that had recently been established in Glasgow, under attack by their Edinburgh rivals, added the clause to their notes where it *remained uninvoked* until 1756. . . . This was during the period of the Seven Years War, when higher taxes imposed to finance the war increased remittances to London. . . . Remittances abroad were further increased by an exceptionally poor harvest in 1756 leading to the importation of £200,000 of foreign grain. (1995, p. 716, emphasis added)

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It was only because of the shocks of the Seven Years War and poor harvests that the option clause came into wider use. Even the Royal Bank of Scotland did not imitate its rival's insertion of the clause until the 1750s. This raises an important question: why did banks abstain from including the clause on their notes if it was useful and effective against unexpected demands for redemption?

Shortages of specie and coins in the early 1760s led to a "small note mania"; a large number of smaller banks began issuing small-denomination notes with option clauses. Until then, "most, and perhaps all, of the Scottish banks included no option clause on their smallest notes" (Gherity 1995, p. 717). These "beggarly bankers," as Adam Smith called them, recklessly invoked option clauses, even on small-denomination notes, against routine redemption demands by the public. Mistrust of banknotes increased among the public and it demanded abolition of option clauses.

Outside the turbulent period of the late 1750s and early 1760s, there are few episodes of note duels or bank runs where the clause was actually used as supposed by its modern proponents. The first note duel was in 1727–28, but the Bank of Scotland successfully survived it without the clause. The second major battle was fought in the mid-1750s by the Edinburgh banks (the Bank of Scotland and the Royal Bank) against the Glasgow banks. White summarizes the episode: "The chartered [Edinburgh] banks then allegedly turned jointly to the tactic of note dueling, but their Glasgow rivals survived the assault by a series of *evasive maneuvers*" (1984, p. 28, emphasis added).

Scottish history indicates that these "evasive maneuvers" were actually used regularly and probably effectively. Adam Smith (1911 [1776], pp. 290–91), Meulen (1934, pp. 129–36), and Checkland (1975, pp. 184–86) provide ample evidence on Scottish banks paying only a fraction of the redemption demand in specie, questioning loyalty and patriotism of redemption demanders, using stalling tactics like checking each note and coin methodically, counting them deliberately slowly, giving tellers long and frequent breaks during counting,

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and at times, simply refusing to pay specie.[9] All these maneuvers together seem to have been effective in protecting banks' liquidity. It was better to raise "redemption costs" for noteholders by "evasive maneuvers" than to use the clause. Scottish banks certainly relied on them more commonly and frequently than they relied on the clause.

The Scottish experience leads one to conclude that the option clause "worked" as long as it was rarely included on notes or invoked by banks. When a large number of banks adopted and used it, the banks' customers demanded that it be abolished. Surprisingly, the Scottish banks, the alleged beneficiaries of the option clause, joined the public in demanding recision of the clause.[10] Gherity (1995, p. 722) states:

> By early 1763, the chartered banks had indicated to the government their willingness to give up the option clause in exchange for the exclusive right to issue bank notes in Scotland. . . . Shortly thereafter, the Glasgow bankers submitted a memorial to the Lord Privy Seal advocating the prohibition of the clause and had drafted a pamphlet or article, apparently for publication, blaming all of Scotland's monetary problems on the clause.[11]

[9]For more details and citations, see Sechrest (1993, pp. 87–88), Dowd (1988, pp. 328–29), and White (1984, pp. 29–31). Gherity (1995, p. 721) informs us that at times banks threatened to call in loans to people who made "unreasonable" demands for specie.

[10]Meulen blamed the "paternalistic attitude" of the government for the abolition of the option clause; in order to protect some "fools," the government sacrificed a great innovation in banking (1934, pp. 131ff). Boase charged "exaggerated assertions, fallacious inferences, and ridiculous fears" (quoted in White 1984, p. 30).

[11]Gherity (1995, pp. 722–24) details the different rationales that led the Edinburgh banks and the provincial (mainly Glasgow) banks to the same conclusion. Notes of the Edinburgh banks were the least suspected by the public since they were the oldest and the largest banks, they acted as the government's bank as taxes and disbursement were channeled through them, and they had the strongest ties with London. They were therefore ready to give up the option clause in exchange for monopoly in the issue of notes. Notes of the provincial

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It was argued earlier that the option clause not only helps individual banks during a run but also mitigates the contagion effect. A counterfactual test of the mitigating effect of the clause on the contagion effect came in 1772, after the option clause was banned in 1765. One of the major banks in Scotland, the Ayr Bank, collapsed in 1772. Its crash,

> spectacular as it was for its day, did not imperil the Scottish banking system as a whole. . . . Only those private banking houses involved with the Ayr Bank's circulation of bills were brought down. . . . Even this brief run was a new and unexpected circumstance, for nothing of the kind had "occurred" following the failure of one private bank in 1764 or another in 1769. (White 1984, p. 32)

The Scottish free-banking system apparently had mechanisms other than the option clause to effectively handle bank runs and contagion effects.

The option clause, as is evident, was never used by any of the Scottish banks to suspend convertibility of all its notes simultaneously, as is envisioned by its modern proponents. The clause was useful precisely to the extent that banks did not use it for a general suspension of convertibility. The clause allowed banks to *discriminate* among their customers on the basis of their motives for redemption demand. Banks gave specie to "bona fide" noteholders but refused it to "specie lifters," speculators, and agents of rival banks. Ironically, the

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banks generally suffered more distrust from the public, but more importantly, they were concerned that in times of crisis, the chartered banks would exercise the option clause and put more strain on their reserves. Some of the provincial banks actually had made their notes payable in notes of the chartered banks. The latter, it seems, were acting as "bankers' banks." The provincial banks were more than happy to take away the right of the chartered banks to use the option clause. Incidently, these rationales of the banks seem to provide support for the thesis of Rothbard (1988) and Sechrest (1988) that the chartered banks acted as the "bankers' banks" for the smaller banks in Scotland, and the Bank of England performed similary for the chartered banks.

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Bank of Scotland acted as the option-clause proponents expected before the inclusion of the clause in 1730; it suspended convertibility of all its notes in 1704, 1715, and 1728.

Acceptance of the Option-Clause Notes

When the Bank of Scotland first offered notes with the option clause in 1730, people readily accepted them. The rival Royal Bank's reminders that its notes were convertible on demand did not affect the demand for Bank of Scotland notes. This is usually interpreted as evidence that the option-clause notes would be generally acceptable to the public (see Dowd 1988, for example).[12] But is the inference valid? If a bank that has the clause printed on its notes offers a greater protection to its noteholders, as the modern proponents argue, then one would expect the public to switch from notes of the Royal Bank (without the clause) to those of the Old Bank (with the clause). This, however, did not happen. Notes of both banks were in such demand that the two banks were the largest in Scotland. One must conclude that the public did not hold notes of the Old Bank because of any perceived advantage of those notes over notes of the Royal Bank.

What then does explain the public's holding of Old Bank notes? Until the early 1750s, the Old Bank was the only major bank that had the option clause. The public accepted its notes because the clause did not really concern them one way or the other. The Old Bank had a long-standing reputation and the clout of a major bank with close ties to London, and it had faithfully paid interest compensation in earlier suspensions even without the clause. During those suspensions, Old Bank notes actually circulated at par. To its noteholders, the introduction of the clause was merely a legal issue, not an economic concern. When other banks without a good reputation adopted and used the clause in the early 1760s, the public demanded it be outlawed. Was

[12]The only question left, according to Dowd, is for banks and the public to figure out a mutually acceptable deferment period and interest compensation.

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the public rational in 1730 but irrational in the 1760s? Its response, one must conjecture, was based not on the presence or absence of the clause, but on the reputation and integrity of note-issuing banks.

The Scottish experience does not suggest that the option-clause notes were preferable or acceptable because of their advantages. The public, it seems, did not find much benefit in the option-clause notes of reputable banks, but suffered gravely at the hands of irreputable banks. The experience does tell us that during most of the period in which option clauses were legal, they were rarely invoked, and were never used as envisioned by the modern proponents of the clause.

The Option Clause and the Market for Specie

Dowd (1991, pp. 764–66) argues that the existence of the option clause results in a stabilizing speculation in the market for gold bills. When the spot demand for gold increases, the price of gold bills falls, raising the gold interest rate. As the gold interest rate gets close to the interest rate specified in the clause, banks would invoke the clause and suspend convertibility. At a gold interest rate above the clause rate, banks would start "lending out their gold reserves." Banks, Dowd maintains, would become sellers of gold instead of buyers, and thus would prevent any further fall in the price of gold bills. The anticipation of a banks' intervention would limit the divergence of the interest rates and would stabilize the market for gold bills.

Dowd's argument is internally consistent. One must wonder, though, how banks would become sellers instead of buyers of gold. The price of gold bills begins to fall initially precisely *because* of the increased demand for gold by banks to meet their redemption needs. Whether the increased demand for gold by a bank would lower the price of gold bills depends on the size of the bank's demand *vis-à-vis* the size of the market for gold. A single bank's demand for gold is unlikely to raise the gold interest rate above the option-clause rate. If the whole banking system were facing a run, suspension of convertibility would dampen the immediate demand for gold. Even if the gold interest rate had risen above the option-clause rate before the

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suspension, it is hard to understand why banks would become net sellers of gold after the suspension. To whom would they be selling gold?

One is obliged to question this whole framework of analysis. It is historically accurate to think in terms of gold bills and gold interest rate, but one doubts whether that framework is relevant for any future free-banking system or the current free-banking theory. It seems more useful to think in terms of the market for gold and the market for loanable funds in exact parallel with banks' increased demand for gold to meet redemptions and for funds to purchase gold. Banks could sell their securities or borrow directly on the market, both of which would raise market rates of interest (not just the gold interest rate).[13] If market rates of interest rise above the clause rate, banks would most likely invoke the clause. In this framework, suspension of convertibility does not make banks net sellers of gold; rather it makes them less urgent demanders of gold and funds to purchase gold.

Potential Misuses of the Option Clause

A bank could invoke the option clause to protect itself not only against temporary illiquidity but also against insolvency. It could defer redemption to "buy time" and invest in risky but more profitable assets to rescue itself from insolvency.[14] How could noteholders protect themselves against this type of misuse of the clause? Dowd (1991, p. 767) suggests that "if potential noteholders felt that this was a sufficiently serious danger, they could simply refuse to accept the notes, and the banks would have to continue providing fully convertible notes instead." This response begs the question. A noteholder is not choosing between notes with and without the clause, but has already chosen the option-clause notes. The question now is about distinguishing proper from improper use of the clause by banks. How does

[13] A "fire sale" of securities to generate funds for the purchase of gold would lower their prices and raise the interest rate.

[14] One is reminded of "zombie" savings and loans of the 1980s.

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a noteholder differentiate between illiquidity and potential insolvency of a bank?

Dowd (1991) does suggest a solution: The bank's shareholders accept "extended liability" whenever the clause is invoked. The acceptance of "extended liability" would indicate that the bank does not face insolvency, and would thereby calm the wary noteholders. This solution demands too much from shareholders in order to make noteholders accept the clause. If shareholders are willing to accept "extended liability," and are able to handle the "principal-agent problem" with banks' managers, then they would be far better off by offering "extended liability" generally, and thus providing an overall competitive advantage to their bank.

Difficulties in differentiating situations of illiquidity and insolvency necessitate a more transparent clause. Gorton (1985) explores the possibility of whether any suspension clause would be incentive compatible, that is, a bank would invoke the clause only when it is illiquid but not when it is insolvent. He designs a suspension clause that is incentive compatible by having independent verification of the bank's portfolio. Because of verification costs, banks do not choose to suspend in situations of insolvency but only in those of illiquidity. The traditional option clause, however, does not include this type of verification. Nonethless, Gorton's analysis indicates that interventions by third parties who can verify the bank's portfolio (clearinghouses, for example) would be more suitable than two-party contracts like the option clause.

Modifications of and Alternatives to the Option Clause

The difficulties with the clause, brought out by analyzing the mechanics of the clause, necessitate consideration of alternative mechanisms to protect banks against temporary liquidity crises. The viable and more effective modifications of the traditional option clause (the one suggested by its modern proponents) will be discussed and then some alternatives to the clause will be offered.

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The traditional option clause focuses only on specie and banknotes and on banks and noteholders, and tries to solve the problem without involving any other party. As discussed earlier, a simple suspension of the convertibility of notes into specie does not solve the problem; it causes bond runs and deposit runs, and thwarts people's attempts to convert their notes and deposits into higher interest-bearing assets, and to transfer their deposits to other banks. A better way to deal with sudden large demands for redemption is not to suspend convertibility, but to offer more options to noteholders and to transfer the problem from its door—with hordes of poorly informed, clamoring customers—to a place where the bank is better able to negotiate and decide among its various alternatives.

In a bank run, customers of a bank are not particularly interested in specie but in avoiding capital losses. The bank should do everything possible to make it easy for its customers to avoid those losses. The bank could offer to convert its notes into notes of other banks that are convenient and acceptable to its customers. A better modification would be to promise conversion of its notes into transferable deposits with other reputable and convenient banks. There is no reason to limit these new types of option clauses to notes. They can apply this equally to deposits. Inclusion of deposits would diminish any chance of bond runs and deposit runs.

The modified option clause is a promise to convert any and all liabilities into any asset, other than specie, that the bank's customers desire. The modified clause may be labeled as the "comprehensive option clause." It does not suffer from the drawbacks of the traditional option clause. There is no need to mark and sign the notes, no need to worry about the transactions costs of paying interest at the end of the deferment period, and no inconvenience to noteholders of finding alternative media of exchange on short notice. The comprehensive option clause does not require noteholders to differentiate between banks' proper and improper use of the clause. Irrespective of the banks' intentions in using the clause, noteholders would be able to protect themselves with little effort.

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More importantly, by exchanging notes with those of other banks and by transferring deposits to them, the bank would divert the problem from its door to the clearinghouse. It would be easier and better for the bank to deal with the clearinghouse, other prominent banks, or finance companies rather than with large numbers of scantly informed and suspicious customers. The comprehensive option clause is also incentive-compatible in the sense of Gorton (1985). It necessitates intervention and verification by third parties to solve the problem of redemption between the bank and its customers.

The comprehensive clause would not have to be printed on notes; it could simply be included in the bank's charter. One may even view it not as a modification, but as an alternative to the traditional option clause. The necessity of third-party involvement makes it categorically different from the traditional clause, and it provides a more effective means to deal with liquidity crises.

A crucial element in the comprehensive clause is the clearinghouse. Even under a mature free-banking system, noteholders and depositors would generally find it difficult to quickly distinguish between problems of illiquidity and insolvency confronting a bank. Reputable third parties could help customers distinguish between those two problems, and thereby provide an orderly resolution of the crises. Clearinghouses are obvious candidates since they are the most likely third parties to possess the necessary information about the bank in trouble. As Timberlake (1984) and Gorton and Mullineaux (1987) document, clearinghouses in the recent past have engaged in "the joint production of confidence" by providing guarantees, loans, and their own currencies (certificates). Clearinghouses, however, would not be the sole source of such information in a mature free-banking system. Bank-rating agencies which would render overall "soundness rating" of banks, or agencies rating banks' ability to redeem their liabilities—"liquidity rating"—would also provide independent information to the banks' customers.

The issue of liquidity crisis arises only in a system with directly convertible notes, convertible either on demand or with deferment.

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The alternative system of "indirect convertibility" obviously avoids the whole problem (Yeager 1985; Greenfield and Yeager 1983).

A Conjectural History of the Option Clause

Introduction of the option clause in eighteenth-century Scotland was a good initial response to unexpected, large increases in redemption demands. Until the turbulent years of the mid-1750s, the Bank of Scotland was the only major bank with the clause on its notes. The fact that rival banks did not use it and the public did not shy away from those rival banks strongly suggests that the clause was considered of little value by banks and the public. The modern proponents assume that after suspending convertibility of notes, the bank would be able to continue to provide its transaction services—notes and deposits of the bank would continue to be used as media of exchange. At least in Scotland, the clause was never used for general suspension of convertibility. As shown earlier, liabilities of the bank that invoked the clause would hardly stay in circulation. The little protection the clause provided to Scottish banks was because it allowed banks to discriminate among redemption demanders.

How would the clause have evolved if the free-banking system had been allowed to mature under laissez-faire? It would have become difficult for banks to invoke the clause discriminately. As more banks adopted the clause and as it came into use as envisioned by the modern proponents, the drawbacks that have been emphasized in this paper would have come into play. Banks would have looked for more viable alternatives and would have adopted any of the modified versions of the traditional clause, including ultimately, the comprehensive option clause. To implement the comprehensive clause, banks would have made prior arrangements and agreements with other banks and financial institutions. Such stipulated cooperation would have played an important role in the banks' efforts to earn the public's confidence. During a time of crisis, banks would ask their partners to publicly reiterate the commitments and such reiteration, or the lack thereof, would provide useful information to customers.

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In discussing how banks in the United States prior to the War Between the States dealt with liquidity crises, Selgin (1993) points out that not only did banks agree to accept each other's notes at par, but that they also made agreements which involved

> provisions for regular note exchange with interest charged on accumulated balances in lieu of immediate settlement as well as stipulations limiting loan expansion for the duration of the restriction. In some cases new deposits were accepted on the understanding that the depositor could receive payment of checks or drafts in notes but not in specie, and merchants formally agreed to continue receiving bank notes at par. (p. 357)

A system with mutual commitments among individual banks certainly seems sustainable. But intense rivalry, moral hazard problems, difficulties in enforcing such commitments, and a fear of the emergence of a dominant bank would necessitate a move toward a joint responsibility of all banks in producing confidence.[15] Clearinghouses would then come to play an important independent role in mitigating temporary liquidity crises of their members. Guarantees and loan certificates by clearinghouses would prevent the aggravation of bank runs and banking panics.

Whether the laissez-faire evolution would have ultimately resulted in a system of indirect convertibility is an interesting question. The evolution of the traditional option clause into the comprehensive clause does suggest a way through which a system with direct convertibility could move toward one with indirect convertibility. The comprehensive clause allows banks to redeem their liabilities—notes and deposits—for other banks' liabilities or for any other financial asset that is acceptable to their customers. General

[15]Goodhart (1988) elaborates on these types of arguments. His focus is on explaining the "evolution" of central banking, where the arguments do not completely succeed. His arguments nevertheless are relevant to the point that is being developed here.

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acceptance of the practice of redeeming the banks' liabilities for other financial assets could become a first step toward the evolution of a banking system with indirect convertibility. An expanded role of independent clearinghouses in dealing with liquidity crises would help continue that evolution.

In conclusion, several drawbacks undermine the claim that the option clause is an effective and desirable mechanism for creating a stable free-banking system. Though it is important for fractional reserve banks to develop a means to tackle sudden demands for redemption, the traditional clause does not meet the challenge. Modifications of the traditional clause, clearinghouse guarantees and certificates, and a system with indirect convertibility seem to provide more suitable mechanisms and arrangements.

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In Defense of Fundamental Analysis: A Critique of the Efficient Market Hypothesis

Frank Shostak

It is widely held that financial asset markets always fully reflect all available and relevant information, and that adjustment to new information is virtually instantaneous.[1] This way of thinking is also known as the Efficient Market Hypothesis (EMH), and is closely linked with the Rational Expectations Hypothesis (REH), which postulates that market participants are at least as good at price forecasting as is any model that a financial market scholar can come up with, given the available information.[2] The view that everyone is as good a forecaster as any model implies that their forecasts do not display systematic biases. In other words, their forecasts are right on average.[3] According to the EMH, by using available information, all market participants arrive at "rational expectations" forecasts of future security returns, and these forecasts become fully

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[1]For a review and critique of the relevant literature, see E.C. Pasour, Jr., "The Efficient-Market Hypothesis and Entrepreneurship," *Review of Austrian Economics* 3 (1989): 95–107.

[2]Horace W. Brock and Jeffrey A. Frankel, "Review of the Efficient Market Hypothesis," *Strategic Economic Design* (November 1991).

[3]Ibid.

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reflected in the prices that are observed in financial markets. Changes in asset prices will occur on account of news which cannot be predicted in any systematic manner. In other words, asset prices respond only to the unexpected part of any news, since the expected part of the news is already embedded in prices. Thus, if the central bank raises interest rates by 0.5 percent, and if this action was anticipated by market participants, the effect of this anticipation will be manifested in asset prices prior to the central bank raising interest rates.

Therefore, when the central bank raises the interest rate by 0.5 percent, this increase will have no effect on asset prices. Should, however, the central bank raise interest rates by 1 percent, rather than the 0.5 percent expected by market participants, prices of financial assets will react to this increase.

The efficiency of the market means that the individual investor cannot outwit the market by trading on the basis of the available information. The implication of the EMH is destructive for fundamental analysis, for this means that analysis of past data is of little help since whatever information this analysis will reveal is already contained in asset prices. Proponents of the EMH argue that if past data contains no information for the prediction of future prices, then it follows that there is no point in paying attention to fundamental analysis. A simple policy of random buying and holding will do the trick. One of the pioneers of the EMH who has popularized this framework is Burton G. Malkiel.

> The theory holds that the market appears to adjust so quickly to information about individual stocks and the economy as a whole that no technique of selecting a portfolio—neither technical nor fundamental analysis—can consistently outperform a strategy of simply buying and holding a diversified group of securities.[4]

Consequently, Malkiel argues that,

[4]Burton G. Malkiel, *A Random Walk Down Wall Street* (New York: W.W. Norton, 1985), p. 194.

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> A blindfolded monkey throwing darts at a newspaper's financial pages could select a portfolio that would do just as well as one carefully selected by the expert.[5]

Does the EMH Framework Make Sense?

The major problem with the EMH is that it assumes that all market participants arrive at a *rational expectations* forecast. This, however, means that all market participants have the same expectations about future securities returns. Yet, if participants are alike in the sense of having homogeneous expectations, then why should there be trade? After all, trade implies the existence of heterogeneous expectations. This is what bulls and bears are all about. A buyer expects a rise in the asset price while the seller expects a fall in the price. Even if we were to accept that modern technology enables all market participants equal access to news, there is still the issue of news interpretations. The EMH framework implies that market participants have the same knowledge. Forecasts of asset prices by market participants are clustered around the *true* value, with deviations from the *true* value randomly distributed, implying that profits or losses are random phenomena. It also means that since, on average, everybody knows the *true* intrinsic value, then no one will need to learn from past errors since these errors are random and therefore any learning will be futile. Yet, if every individual has different knowledge, then this difference will have an effect on his forecast. A success or a failure in predicting asset prices will not be completely random, as the EMH suggests, but must also be attributed to each individual's knowledge. In the words of Hans-Hermann Hoppe,

> If everyone's knowledge were identical to everyone else's, no one would have to communicate at all. That men do communicate demonstrates that they must assume that their knowledge is not identical.[6]

[5] Ibid.

[6] Hans-Hermann Hoppe, "On Certainty and Uncertainty, or: How Rational Can Our Expectations Be?" *Review of Austrian Economics* 10, no. 1 (1997): 49–78.

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Another major problem with the EMH framework is that it implies that any buy-and-hold strategy is as good as any other, and that there is no scope for entrepreneurial activity in financial markets. On this, E.C. Pasour, Jr., writes,

> Since the EMH is a version of the zero-profit theorem of competitive equilibrium in the conventional theory of the firm, it is argued that shortcomings of the EMH are similar to those of other long-run competitive theories that focus exclusively on equilibrium outcomes while ignoring the entrepreneurial market process that generated those outcomes.[7]

The EMH framework also gives the impression that the stock market can exist separately from the real world. However, the stock market doesn't have a *life of its own*. That is why an investment in stocks should be regarded as an investment in business as such, and not just as an investment in stocks. By becoming an investor in a business, an individual has engaged in an entrepreneurial activity. In other words, he has committed his capital with a view to supply the most urgent needs of consumers. This means that for an entrepreneur, the ultimate criteria for investing his capital is to employ it in those activities which will produce goods and services that are on the highest priority list of consumers. It is this striving to satisfy the most urgent needs of consumers that produces profits, and it is this alone that guides entrepreneurs. In this regard, Ludwig von Mises writes that

> [S]tock exchange transactions produce neither profits nor losses, but are only the consummation of profits and losses arising in trading and manufacturing. These profits and losses, the outgrowth of the buying public's approval or disapproval of the investments effected in the past, are made visible by the stock market. The turnover on the stock market does not affect the public. It is, on the contrary, the public's

[7]Pasour, "The Efficient-Market Hypothesis and Entrepreneurship," pp. 95–96.

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> reaction to the mode in which investors arranged production activities that determines the price structure of the securities market. It is ultimately the consumers' attitude that makes some stocks rise, others drop.[8]

Is it valid to argue that past information is completely imbedded in prices and therefore of no consequence? After all, relevant information for participants in financial markets includes causes which trigger changes in real data. It is questionable whether the duration and the strength of effects of various causes can be discounted by the market participants. For instance, a market-anticipated lowering of interest rates by the Central Bank, while being regarded as old news and therefore not supposed to have real effects according to the EMH, will in fact set in motion the process of the boom-bust cycle. Also, various causes, once set in motion, initially only affect some individuals' real income. As time goes by, however, the effect of these causes spreads across a wider spectrum of individuals. Obviously, these changes in the real incomes of individuals will lead to changes in the relative prices of assets. To suggest, then, that somehow the market will quickly incorporate all future changes of various present causes without telling us how it is done is to evade the issue. It has to be realized that markets are comprised of individual investors who require time to understand the implications of various causes on real data and prices of financial assets. Even if a particular cause was anticipated by the market, that doesn't mean that it was understood and therefore discounted. It is hard to imagine that the effect of a particular cause which begins with a few individuals and then spreads over time across many individuals can be assessed and understood instantaneously. For this to be so, it would mean that market participants can immediately assess future consumers' responses and counter responses to a given cause. This, of course, must mean that market participants not only must know consumers' preferences but

[8]Ludwig von Mises, *Human Action* (Chicago: Contemporary Books, 1963), p. 520.

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also how these preferences are going to change. However, consumer preferences cannot be revealed before consumers have acted.

If one is to accept the EMH framework, and thus believe that the market is always in equilibrium, then there is no room left for any investment advisory services, just to take one example. Anyone who considers giving advice to investors must take disequilibrium—or for that matter inefficiency—for granted. The very existence of the consulting industry is a tacit denial of the EMH.

Are Profits Random Phenomena?

The proponents of the EMH claim that the main message of their framework is that excessive profits cannot be secured out of public information. They maintain that any successful method of making profits must ultimately be self-defeating. Against this background, some of the EMH proponents raise doubts as to the benefit of analysis of historical data to ascertain future direction of asset prices. In fact, these EMH proponents even maintain that an automaton or a dart-throwing chimpanzee can be a good substitute for entrepreneurial activity. In other words, what this approach suggests is passivity and resignation from an active search for opportunities.

Now, it is true that profits as such can never be a sustainable phenomenon. However, the reasons for this are not those presented by the EMH. Profit emerges once an entrepreneur discovers that the prices of certain factors are undervalued relative to the potential value of the products that these factors, once employed, could produce. By recognizing the discrepancy and doing something about it, an entrepreneur removes the discrepancy, i.e., eliminates the potential for a further profit. According to Murray N. Rothbard,

> Every entrepreneur, therefore, invests in a process because he expects to make a profit, i.e., because he believes that the market has underpriced and undercapitalized the factors in relation to their future rents.[9]

[9]Murray N. Rothbard, *Man, Economy, and State* (Los Angeles: Nash), vol. 2, p. 466.

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The recognition of the existence of potential profits means that an entrepreneur had particular knowledge that other people didn't have. Having this unique knowledge means that profits are not the outcome of random events, as the EMH suggests. For an entrepreneur to make profits, he must engage in planning and anticipate consumer preferences. Consequently, those entrepreneurs who excel in their forecasting of consumers' future preferences will make profits.

Planning and research never guarantee that profit will be secured. Various unforeseen events can upset entrepreneurial forecasts. Errors which lead to losses in the market economy are an essential part of the navigational tools which direct the process of allocation of resources in an uncertain environment in line with what consumers dictate. Uncertainty is part of the human environment, and it forces individuals to adopt active positions, rather than resign to passivity, as implied by the EMH. The EMH framework views the act of investment as no different from casino gambling. In the words of Ludwig von Mises, however,

> A popular fallacy considers entrepreneurial profit a reward for risk taking. It looks upon the entrepreneur as a gambler who invests in a lottery after having weighed the favorable chances of winning a prize against the unfavorable chances of losing his stake. This opinion manifests itself most clearly in the description of stock exchange transactions as a sort of gambling.

Mises then suggests,

> Every word in this reasoning is false. The owner of capital does not choose between more risky, less risky, and safe investments. He is forced, by the very operation of the market economy, to invest his funds in such a way as to supply the most urgent needs of the consumers to the best possible extent.

Mises then adds,

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> A capitalist never chooses that investment in which, according to his understanding of the future, the danger of losing his input is smallest. He chooses that investment in which he expects to make the highest possible profits.[10]

The EMH framework presents the stock market as a gambling place which is detached from the real world. However, as Mises suggests,

> The success or failure of the investment in preferred stock, bonds, debentures, mortgages, and other loans depends ultimately also on the same factors that determine success or failure of the venture capital invested. There is no such thing as independence of the vicissitudes of the market.[11]

Further to this,

> Stock speculation cannot undo past action and cannot change anything with regard to the limited convertibility of capital goods already in existence. What it can do is to prevent additional investment in branches and enterprises in which, according to the opinion of the speculators, it would be misplaced. It points the specific way for a tendency prevailing in the market economy, to expand profitable production ventures and to restrict the unprofitable. In this sense the stock exchange becomes simply the focal point of the market economy, the ultimate device to make the anticipated demand of the consumers supreme in the conduct of business.[12]

Contrary to the accepted way of thinking,

> Entrepreneurial profit is not a "reward" granted by the customer to the supplier who served him better than the sluggish routinist; it is the

[10]Mises, *Human Action*, pp. 809–10.
[11]Ibid., p. 810.
[12]Ibid., pp. 517–18.

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result of the eagerness of the buyers to outbid others who are equally anxious to acquire a share of the limited supply.[13]

The Validity of Statistical Verifications of EMH

The alleged correctness of the EMH framework rests on the extensive statistical tests that supposedly verified the validity of the EMH. These tests rest on the assumption that investment returns are serially independent, and that their probability distributions are constant through time. What is probability? The probability of an event is the proportion of times the event happens out of a large number of trials. For instance, the probability of obtaining heads when a coin is tossed is 50 percent. This does not mean that when a coin is tossed 10 times, 5 heads are always obtained. However, if the experiment is repeated a large number of times then it is likely that 50 percent will be obtained. The greater the number of throws, the nearer the approximation is likely to be.

Or say it has been established that in a particular area, the probability of wooden houses catching fire is .01. This means that on the basis of experience, on average, 1 percent of wooden houses will catch fire. This does not mean that this year or the following year the percentage of houses catching fire will be exactly 1 percent. The percentage might be 1 percent or not each year. However, over time, the average of these percentages will be 1 percent.

This information, in turn, can be converted into the cost of fire damages thereby establishing the case for insuring against the risk of fire. Owners of wooden houses might decide to pool their risk, i.e., spread the risk by setting up a fund. In other words, every owner of a wooden house will contribute according to a certain proportion to the total amount of money that is required in order to cover the damages of those owners whose houses will be damaged by the fire. Note that insurance against the fire risk can only take place because we know its probability distribution and because there are enough

[13]Ibid., p. 300.

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owners of wooden houses to spread the cost of fire damage among them so that the premium will not be excessive. In this regard, these owners of wooden houses are all members of a particular group or class that will be affected in a similar way by a phenomenon called fire. We know that, on average, 1 percent of the members of this group will be affected by fire. However, we don't know exactly who it will be. The important thing for insurance is that members of a group must be homogeneous as far as a particular phenomenon is concerned.

If, however, we are dealing with non-homogeneous unique cases, they all should be treated as different groups, and obviously the risk cannot be pooled, although we still can know the probability distribution of a concerned risk. In this regard, entrepreneurial activity should be regarded as uninsurable. It is unique and specific, and allows no probability distribution of this activity to be established. (As we have already seen, probability distribution rests on the assumption that we are dealing with a particular repeatable event. If however, an event is non-repeatable no probability distribution can be established.) Thus, the return on a particular investment is specific and unique. It has occurred as a result of a unique and non-repeatable entrepreneurial activity. Profit occurs whenever an entrepreneur discovers that prices of certain factors are undervalued relative to the price of the final product. Once an entrepreneur acts upon this, he eliminates the potential for a further profit. For an entrepreneur to make another profit, he would have to be engaged in a different activity. Also, no entrepreneur can know what ideas he will have in the future.

As such, if entrepreneurial activities were repeatable with known probability distributions of returns, then we would not need entrepreneurs. After all, an entrepreneur is an individual who arranges his activities toward finding out consumers' preferences. These preferences, however, are never constant. One day consumers prefer a particular product, and another day shift their preferences toward other goods and services. This, of course, precludes any possibility

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of establishing a probability distribution. The assumption that such probability can be established as the EMH proponents maintain is an absurdity, for it describes not a world of human beings who exercise their freedom of choices, but machines that never change their preferences and which are subject to random errors and breakdowns of known types and characteristics. In the words of Mises,

> Entrepreneurs do not act as members of a class, but as individuals. No entrepreneur bothers a whit about the fate of the totality of the entrepreneurs. It is irrelevant to the individual entrepreneur what happens to other people whom theories, according to a certain characteristic, assign to the same class they assign him. In the living, perpetually changing market society there are always profits to be earned by efficient entrepreneurs.[14]

Statistical tests of the EMH that pretend that a probability distribution of returns on assets can be established are erroneous. These tests employ historical data of returns, and naively conclude that the average of these returns will be also relevant in the future. Thus, in year one, entrepreneurial activity yielded 10 percent return on investment. In year two the return was 15 percent. In year three it was 1 percent, and in year four it was 2 percent. The average of this distribution is 7 percent. What we have here is a historical average of returns. By no means, however, does it imply that we can establish a probability distribution on the same basis as one can establish for the risk of fire, or for obtaining heads in tossing a coin. As such, every human activity is unique and cannot be analyzed in the same way that one would analyze objects. Consequently, historical data, misrepresented as a time series, is in fact, a display of non-homogeneous pieces of information. Each observation is a unique, non-repeatable event caused by a particular individual response. This, in turn, means that to make sense of historical data one must scrutinize them not

[14]Ibid., p. 299.

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by means of mathematical and statistical methods but by means of trying to grasp and understand how it emerged.

What is Behind Wild Swings in Asset Prices?

On October 19, 1987, the Dow Jones Industrial Average fell by 22 percent. Many followers of the EMH were perplexed. How could a drop of this magnitude in one day be rationalized by the EMH? Andrei Shleifer and Lawrence H. Summers wrote that,

> The stock in the efficient market hypothesis—at least as it has traditionally been formulated—crashed along with the rest of the market on October 19, 1987.[15]

Some other experts came to similar conclusions arguing that the October 1987 stock market crash that took place in a single day cannot be explained by news about fundamentals. This view was further supported by interviews carried out by Robert Shiller with traders who were active during the October crash.[16] Supporters of the EMH, however, argue that there were several pieces of important news that could have caused the crash. In early October, Congress threatened to impose a merger tax that would have made merger activity prohibitively expensive, and could well have ended the merger boom.[17] Also, Secretary of the Treasury James Baker had threatened in October to encourage a further fall in the price of the dollar, increasing risks for foreign investors, and thereby also scaring domestic investors.

Experts who felt that the EMH didn't adequately explain large price movements that last for months or even years latched onto new theories. The new theories offer amendments to the EMH, to allow

[15]Andrei Shleifer and Lawrence H. Summers, "The Noise Trader Approach to Finance," *Journal of Economic Perspectives* 4, no. 2 (Spring 1990): 19–33.

[16]Robert J. Shiller, "Investor Behavior in the October 1987 Stock Market Crash: Survey Evidence" (Cambridge, Mass.: NBER Working Paper No. 2446, 1987).

[17]Malkiel, *A Random Walk Down Wall Street*, p. 218.

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for these large price movements, which are labeled bubbles.[18] These new theories permit the possibility that observed asset prices will not always be at their equilibrium. Most of the bubble theories attribute large price fluctuations to abnormal investor behavior, also labeled as irrational behavior. The reason for this behavior, so they say, is psychological. Thus, according to the new theories, changing fashions, fads, and erratic and capricious shifts in investor sentiment could set in motion a bubble.[19] The attempt to explain large price fluctuations by means of sentiment presents investors as automatons who mechanically react to this sentiment. Investors' actions are, however, conscious and purposeful. It is not some mysterious sentiment that causes investors to generate sharp swings in prices that shift them out of equilibrium, but rather investors' conscious actions. How is this possible? In a free, unhampered market economy, entrepreneurial errors generate incentives for their corrections. Thus, all other things being equal, let us assume that too much capital was invested in the production of product A, and that too little capital was invested in the production of product B. The effect of the over-investment in the production of A is to depress its profits, because the excessive quantity of A can only be sold at prices that are low in relation to costs. The effect of under-investment in the production of B, on the other hand, will lift its price in relation to cost, and thus will raise its profit. Obviously, this will lead to withdrawing of capital from A and a channeling of it toward B, implying that if investment goes too far in one direction, and not far enough in another direction, this will set in motion counteracting forces of correction.[20] Further to this, Rothbard wrote that

[18]O. Blanchard and M. Watson, "Bubbles, Rational Expectations and Financial Markets," *Crisis in the Economic and Financial Structure*, P. Wachtel, ed. (Lexington, Mass.: Lexington Books, 1982).

[19]Tro Kortian, "Modern Approaches to Asset Price Formation: A Survey of Recent Theoretical Literature," Research Discussion Paper 9501 (Reserve Bank of Australia, March 1995).

[20]George Reisman, *The Government Against the Economy* (Ottawa, Ill.: Jameson Books, 1985), p. 5.

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> General economic theory teaches us that supply and demand always tend to be in equilibrium in the market, and that therefore prices of products as well as of the factors that contribute to production are always tending towards some equilibrium point.[21]

For wild and prolonged swings in asset prices to occur, there must be a mechanism that undermines the functioning of the market economy. According to Mises, this mechanism is set in motion by the central bank's monetary policies.[22] Trouble erupts whenever central bank officials try to improve on the working of the free-market economy. We have seen that in a free, unhampered market, errors generate incentives for their corrections. These incentives are, however, removed once the central bank begins to inject money, thereby artificially lowering interest rates below the level dictated by consumer time preferences. In this regard, in a free, unhampered market economy, interest rates in financial markets will mirror consumers' time preferences. By responding to interest rates, entrepreneurs are, in fact, abiding by consumers' instructions. Once interest rates in financial markets are lowered artificially, they cease to reflect consumers' time preferences. This, in turn, means that entrepreneurs, once they are reacting to interest rates in financial markets, are committing errors, i.e., doing things against consumers' wishes. As long as the artificially low interest-rate policy remains in force, there are no ways or means for entrepreneurs to know that they are committing errors. On the contrary, as the policy of artificial lowering of interest rates intensifies, it generates apparent profits and a sense of prosperity. The longer the period of artificial lowering of interest rates is, the more widespread will be the errors, i.e., the disobedience of entrepreneurs regarding the will of consumers. The discovery that entrepreneurs didn't abide by consumers' instructions occurs once the

[21]Murray N. Rothbard, "Economic Depressions: Their Cause and Cure," *The Austrian Theory of the Trade Cycle and Other Essays* (Auburn, Ala.: Ludwig von Mises Institute, 1996), p. 23.

[22]Mises, *Human Action*, pp. 538–86.

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central bank tightens its monetary stance. In this regard, Mises writes,

> It is essential to realize that what makes the economic crisis emerge is the democratic process of the market. The consumers disapprove of the employment of the factors of production as effected by entrepreneurs.

Mises argues further that,

> As soon as the credit expansion comes to an end, these faults become manifest. The attitudes of the consumers force the businessmen to adjust their activities anew to the best possible want-satisfaction. It is this process of liquidation of the faults committed in the boom and readjustment to the wishes of the consumers which is called depression.[23]

The Misesian business-cycle theory shows that the artificial lowering of interest rates sets in motion expectations for strong activity and good profits in the capital goods sector. This, in turn, raises the allocation of funding towards the capital-goods sector in relation to the consumer-goods sector. This lifts stock prices of capital-goods-producing companies relative to stock prices of consumer-goods-producing companies. If the lowering of interest rates is a one-time-only event, and is not supported further by the central bank, then the market interest rate will rise. In response to this, stock prices of capital goods-producing companies will weaken, while those of consumer-goods-producing companies will strengthen on a relative basis. If, however, the central bank clings to its loose monetary stance, this will reinforce the rise in stock prices of capital-goods-producing companies relative to the stock prices of consumer-goods-producing companies. Relentless monetary pumping by the central bank that is further amplified through fractional reserve banks raises all prices in money terms, including prices of stocks. Whenever the

[23]Ibid., p. 505.

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central bank reverses its monetary stance, a stock market bust is set in motion. The severity of the bust is dictated by the magnitude of the preceding boom, i.e., the preceding bull market and by the state of the pool of savings. Thus, the longer the bull market, the more widespread the errors will be, and therefore the more severe the bust (i.e., the bear market) will be. If the savings pool is expanding, the severity of the bust will be cushioned. If, however, the savings pool is shrinking, then the bear market could be more protracted and severe. In this way, the Austrian or Misesian theory of the business cycle provides the rationale behind the large swings in asset prices.

Importance of Fundamental Analysis

Since various real causes are likely to have prolonged effects on the real data, we can conclude that asset markets cannot be in equilibrium. This, in turn, provides scope for benefits from analyzing the historical data in order to assess the future direction of asset prices. If, however, this can be done, then why don't good analysts become entrepreneurs and make money for themselves? Being knowledgeable doesn't mean that one has the skills to be an entrepreneur. An entrepreneur is an individual who is prepared to confront uncertainties already inherent in the market, and who has the skills to do this.[24] By means of exercising his judgment, an entrepreneur decides on his actions. According to Mises,

> Entrepreneurial judgment cannot be bought on the market. The entrepreneurial idea that carries on and brings profit is precisely that idea which did not occur to the majority. It is not correct foresight as such that yields profits, but foresight better than that of the rest. The prize goes only to the dissenters, who do not let themselves be misled by the errors accepted by the multitude. What makes profits emerge is the

[24]Rothbard, *Man, Economy, and State*, p. 501.

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> provision for future needs for which others have neglected to make adequate provision.[25]

To form his judgment, an entrepreneur also takes into account past data. The interpretation of historical data could provide an important input for the entrepreneurial decision process. However, it is his sole vision concerning future consumers' preferences which will determine whether to pursue or not to pursue a particular venture. Various advisory services of economists and fundamental analysts owe their proliferation to a large extent to government and central-bank interference with the economy. The assessment of the implication of various government and central-bank policies requires special training and skills that many entrepreneurs might not have. Possessing these skills, however, doesn't imply that economists or analysts can accurately forecast. What these analyses provide is an important input to entrepreneurs. Economists who follow in the footsteps of Mises maintain that his praxeological framework provides a useful tool for sound analysis.[26] Thus, Jörg Guido Hülsmann writes,

> According to Mises, economics is a science that consists of *a priori* propositions about reality. In his eyes, these propositions are implied in the conditions of action and are arrived at by an exercise of logic. Whatever is the product of sound discursive reasoning, so the argument goes, must be valid for reality.[27]

While the praxeological framework does not provide us with specifics of future events, this framework specifies precisely the logical structure of human actions. In the words of Hoppe,

[25]Mises, *Human Action*, p. 871.

[26]Hans-Hermann Hoppe, *Praxeology and Economic Science* (Auburn, Ala.: Ludwig von Mises Institute, 1995), p. 41.

[27]Jörg Guido Hülsmann, "Knowledge, Judgment, and the Use of Property," *Review of Austrian Economics* 10, no. 1 (1997): 23–48.

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> [while] I cannot predict what goals I may pursue in the future, what means I will deem appropriate to reach these goals, and what other conceivable courses of action I will choose to reject in order to do what I will actually do (my opportunity cost), I can still predict that as long as I act at all, there will be goals, means, choices, and costs; that is, I can predict the general, logical structure of each and every one of my actions, whether past, present, or future.[28]

Whenever the central bank artificially lowers interest rates, the praxeological framework enables us to establish that this artificial lowering must result in the boom–bust cycle. Praxeology, however, cannot tell us the severity of the cycle. The praxeological framework can be seen as providing a link between reality and theoretical reasoning, i.e., it prevents the emergence of theoretical reasoning which is detached from reality. The reason why it can fulfill this role is because it is based on the noncontradictory axiom that human beings are acting consciously and purposefully. All this, however, doesn't guarantee accurate predictions. All other things being equal, one could evaluate the likely impact of a particular government policy with the help of praxeology. Thus, even if other things can never be equal, an analyst could get a good idea as to the consequences of a particular government or central bank action. Over time, forecasters that are equipped with the praxeological framework would outperform those forecasters who are not familiar with this framework.[29]

Conclusion

The main shortcomings of the EMH are similar to those of the long-run competitive theories that focus exclusively on equilibrium outcomes while ignoring the entrepreneurial activity that generates those outcomes. The EMH gives the impression that there is a difference between investing in the stock market and investing in a

[28]Hoppe, "On Certainty and Uncertainty": 65.
[29]Hoppe, *Praxeology and Economic Science*, p. 42.

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business. However, the stock market doesn't have a *life of its own*. The success or failure of investment in stocks depends ultimately on the same factors that determine success or failure of any business.

Statistical tests that supposedly validate the EMH framework are based on a flawed method and a failure to understand that the main cause behind the instability in financial markets is the monetary policies of the central bank.

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Government Family Planning: Effects and Incentives

Jacqueline R. Kasun

Austrian economics has long understood that government subsidies of private activities distort incentives, encouraging recipients to use and/or provide more of the services than would otherwise be the case, and to devote resources to lobbying for the protection and promotion of the services (Hayek 1988; Rothbard 1978, pp. 140–70). An excellent example of these tendencies exists in the government-subsidized family-planning industry.

Since the mid-1960s, the government of the United States has played an increasingly intrusive role in the reproductive decisions of persons both in this country and abroad. The effort started as part of the War on Poverty. In 1967, Congress amended the Social Security Act to provide funds for "family planning" in maternal and child health programs; Title V, Title XIX, and Title XX of the Act became major vehicles for federal funding. In that same year, Title X of the Foreign Assistance Act provided financing for family planning and population control to countries receiving U.S. foreign aid (Kasun 1988). In 1970, Title X of the Public Health Services Act added to the flow.

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In 1978, the Adolescent Pregnancy Act called for government birth control to be dispensed through "children and youth centers . . . school and educational programs . . . recreation programs" and on and on. In the same year, the Foreign Assistance Act required all countries receiving U.S. foreign aid to take steps to reduce their rates of population growth (22 U.S. Code, sec. 2151-1, sec. 2151a). The contract with Costa Rica, for example, which provided $12,040,000 to that country from the U.S. Agency for International Development, set a "target" of 70 percent for "contraceptive prevalence" by 1992 and a "reduction in crude birth rate from 32/1000 to 28/1000" as well as "family planning included in curricula of medical and nursing schools" and "sex education taught in the schools . . . [and] disseminated to the non-enrolled school age population" (Contract 1988).

The Clinton administration has provided important additional funds and freedom of action for the family planning industry. As the activities of the industry have become more and more pervasive and its government grants larger and more conspicuous, it has met increasing resistance in Congress and the electorate. In response, spokesmen for the industry have disseminated elaborate statistical studies purporting to show the benefits flowing from the industry's activities, claiming public assistance cost savings of $4 to $12, or even higher, for every public dollar spent on birth control (Brindis and Korenbrot 1989; Forrest and Singh 1990a,b). These have enjoyed wide publicity in the media.

The statistical demonstrations have not relied on empirical observations, but rather on assumptions regarding the numbers of additional pregnancies that would presumably occur in the absence of government-subsidized birth control.

For example, one method of estimation assumes that, in the absence of publicly-funded family planning, women would use the same types and proportions of birth control, including no birth control, as reported by women of similar income who did not use publicly-funded clinics, and would experience the rates of pregnancy due to contraceptive failure associated with each of these methods

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(Forrest and Singh 1990a,b). The estimate assumes that 21 percent of the women presently obtaining contraceptives from public clinics would stop using any method of birth control but would not otherwise change their behavior.

However, although all or almost all women who use public clinics are sexually active and are seeking to avoid pregnancy, this cannot be assumed regarding women who do not use such clinics. A significant proportion of such women may not be currently sexually active, but professional "family planning" parlance defines all women who have ever had intercourse as being "sexually active" ("Women at Risk," p.vii). Therefore, a comparison of these two groups is likely to give a falsely high estimate of the additional pregnancies that would occur if the clinics should lose their public funding.

A second method of estimation assumes that, in the absence of publicly funded clinics, women would shift to other types of birth control, including no birth control, in the same proportions as reported by women who stopped using the pill between 1979 and 1982, and would, as in the method described above, experience the rate of accidental pregnancy associated with each type of birth control (Forrest and Singh 1990a,b). It is assumed that 28 percent would use no method of birth control, but would not otherwise change their behavior. Here again, the control group is not restricted to women who are currently sexually active and are seeking to avoid pregnancy, as is the case with women who attend birth control clinics. Comparison of the two groups, therefore, leads to a falsely high estimate of the additional pregnancies that would occur if the clinics should lose their public funding.

Similarly, a third method is based on women's reports in 1979 of their contraceptive behavior prior to their first visit to a public clinic (Forrest and Singh 1990a,b). It assumes that 55 percent of the clinic clients would use no type of birth control, but would not otherwise change their behavior if the clinic services were no longer available. It is biased in the upward direction for the same reason as the first two methods of estimation, but to an even greater degree.

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Finally, "Pattern IV" (Forrest and Singh 1990a,b) assumes that, if clinic services were no longer available, all of the women who are presently served would continue their current levels of sexual activity but none of them would make any effort to prevent conception. Pattern IV is chiefly useful in yielding an extremely high estimate of the pregnancies that are prevented by the clinics, with which an apparently more "reasonable" estimate (based on the first three methods which, as we have seen, probably yield exaggerated estimates of the cost savings) can be compared.

None of the estimates has taken account of the tendency of people to behave more circumspectly in situations where they face higher risk (Baumol and Blinder 1991, p. 257), and conversely, to behave more carelessly when they are "insured" against risk. Just as the person whose car is fully insured is less likely to be sure always to lock his car, the young couple who believe their publicly provided contraceptives are "protecting" them may be less likely to avoid sexual risks.

The alleged "cost savings" were, therefore, a weak reed on which to base an increase in public expenditures. With few exceptions, other studies have reported little to support the expectation of public savings from public outlays on birth control. Lundberg and Plotnick found that the likelihood of a first premarital birth on the part of young white women is higher in states which provide more liberal access to contraceptives, abortion, and AFDC benefits (Lundberg and Plotnick 1990). A study conducted in Ohio and Georgia showed that births, as well as pregnancies, declined among Medicaid-eligible women after the states stopped paying for abortions (Trussell, et al. 1980).

A study of 15 states with similar social-demographic characteristics and rates of teenage pregnancy in 1970 showed that the states with the highest expenditures on family planning had the largest increases in abortions and births out of wedlock among teenagers between 1970 and 1979 (Roylance 1981). A study of 1980–81 data for the 50 states shows that the states that spent less on family

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planning also had lower rates of abortion and out-of-wedlock births on the part of white teenagers (Kasun 1987). Singh reported, "a significant and positive relationship between the percentage of women receiving AFDC payments in a state and the availability there of Medicaid funds for abortion" (Singh 1986, p. 216).

There is further evidence that restricting, rather than increasing, access to publicly-funded birth control is more likely to reduce dependency. Several states which have required that parents be notified when their minor children are given contraceptives or abortions have experienced reductions in their rates of adolescent pregnancy. In 1980, the state of Utah passed a law requiring parental consent for minors to be given birth control, and rates of pregnancy and abortion published by the state health department fell among girls aged 15–18 (United Families of America 1983).

Based on interviews with some 12,000 young people, Marsiglio and Mott concluded that teenagers who had sex education (which is one of the activities supported by government birth-control programs) were more likely to engage in sexual activity at an early age but no more likely to become premaritally pregnant than young people who had not had the instruction (Marsiglio and Mott 1986). Dawson, publishing in the same year, also found that young people who had sex education were more likely to engage in sexual activity at an early age, but that it was impossible to determine the effect on premarital pregnancy because of the underreporting of abortions, estimating that the young people responding to the survey reported no more than 33 percent of the abortions they had actually had, thus producing a spuriously low estimate of premarital pregnancies (Dawson 1986).

Concluding a study of the effects of the law requiring parental notification of minors' abortions in Massachusetts, Cartoof and Klerman wrote that "Massachusetts minors continue to conceive, abort, and give birth in the same proportions as before the law was implemented" (Cartoof and Klerman 1986). This conclusion, however, was at odds with the numbers they presented. They counted the

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number of abortions performed on minors in the state before the law and in the state and five neighboring states after the law. They also counted the number of births to minors before and after the law.

They presented the following figures:

	1980 Before the law	1982 After the law	Change
Abortions, girls under 18	5113	3943*	-1170
Births, girls under 18	2471	2478	+7

*Including abortions performed out-of-state on Massachusetts minors

Clearly, there was a large reduction in abortions and a negligible increase in births to minors in Massachusetts. How much of this reduction in abortion is the result of out-of-state minors no longer coming to Massachusetts? The authors state that after the law "the number of minors who obtained out-of-state abortions jumped to 69, an increase of 130 percent over the average of the first four months of 1981" (p. 398). This would imply that about 30 Massachusetts minors per month had been going out of state for abortions prior to the law. They also state that "twice as many out-of-state minors came to Massachusetts for that reason" (p. 399). This would imply that about 60 out-of-state minor girls per month, or about 720 per year, had been coming to Massachusetts for abortions before the law. This leaves a net reduction of 450 (1170-720 = 450) abortions that must be attributed to the law's effects on Massachusetts minors. This is more than 10 percent of the number previously performed on them.

In 1981, Minnesota passed such a law. Figures published by the Center for Health Statistics, Minnesota Department of Health, showed that the abortion rate among girls 15 to 17 years of age fell by 21 percent between 1980 and 1985, the pregnancy rate fell by 15 pecent, and the fertility rate by 9 percent (Select Committee on Children, Youth, and Families 1986). Planned Parenthood filed suit against the state of Minnesota to have the law declared unconstitutional

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(*Hodgson* v. *Minnesota* 1988). The law was upheld and took effect again in 1989.

A study published in 1994 again addressed the effects of parental involvement laws on adolescent abortion and fertility. It concluded that such laws do "reduce adolescent abortion rates and may, to a lessor (sic) degree, reduce adolescent pregnancy rates. Thus, the findings imply that enforcement of parental involvement laws will increase adolescent fertility rates" (Ohsfeldt and Gohmann 1994). The authors base this conclusion on multiple regression models, in one set of which the ratios of adolescent abortion rates to rates for older teens and adult women in several states are the dependent variables; in the other set, the dependent variables are the ratios of adolescent pregnancy rates to rates for older teens and adult women.

While their conclusion follows logically from the results apparently generated by their models, there are some problems with their models. In the first place, their models explain only one-fourth to one-third of the variation in pregnancy ratios. That is to say, the coefficients of determination are small, meaning that the standard errors of the estimates must be large and the significance of the findings correspondingly diminished. Second, the authors base their conclusions solely on point estimates rather than the confidence interval estimates that are normally used in such cases. The article contains no direct information on the standard error of the estimates or the standard errors of the partial regression coefficients. These are serious faults.

Another interesting feature is that the authors do not use birth data, which are readily available from official sources and provide direct, accurate information about fertility, but instead estimate fertility indirectly from privately estimated pregnancy data, which include privately estimated abortion rates. They then infer that an increase in fertility must have occurred when their model predicts a decrease in pregnancy that is smaller than the estimated decrease in abortion.

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In addition, the authors say that they omit from their study all states "where reliable data on adolescent abortions are unavailable" as well as Alaska and Hawaii for undisclosed reasons. It is true that, as the result of lobbying by the government-funded "family planning" industry, abortion data throughout the nation are not collected as vital statistics such as births, deaths, and marriages. The federal government imposes no requirements for abortion reporting; nor do many, perhaps most, states. In California, for example, as in many other states, the state health department collects no information on abortions other than those paid for by MediCal. The department responds to requests for total abortion information by providing Guttmacher Institute estimates. The federal Centers for Disease Control publishes figures for some of the states from time to time, but the most widely used data by age and race for all states come from the Guttmacher Institute, a research agency created by Planned Parenthood, one of the principal promoters of government "family planning," at intervals of three to five years (Henshaw 1993), based on their surveys of all known abortion providers in the country.

Given the total number of abortions indicated by their surveys, the Institute estimates the proportion of abortions performed on teenagers, using information supplied by state health departments and the Centers for Disease Control. For some states, no such information or estimates exist. In order to publish figures on the age distribution of abortions for these states, persons at the Institute make estimates "based on the proportion of abortions obtained by women of the same age in neighboring or similar states" (Henshaw 1993). In 1988, this list numbered 10 states, including California, the most populous, and Illinois. What all of this means is that the sample used for the Ohsfeldt and Gohman models omits 26 percent of the population and the associated information without correcting for the bias thus produced. In their alleged effort to "avoid possible bias," they may have created more bias than originally existed in the figures estimated by the Guttmacher Institute.

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In principle and for very good reasons, Austrian economics has serious reservations about statistical analysis. The Ohsfeldt and Gohmann article, as well as the others discussed above, shows that these reservations are well taken.

Finally, the proponents of government birth control have created school "clinics" to distribute contraceptives to school children, claiming miraculous success in reducing adolescent pregnancy (Zabin 1986). Subsequent evaluation, however, showed that the clinics either had no effect or significantly increased births to teenagers (Kirby 1993; Kirby 1991).

A serious question remains. Should government try to expand access to family planning information and services in the interests of controlling fertility among those who are or might become dependent on public assistance? To Austrian economic thought, it is obvious that public assistance must have a seriously adverse impact on behavioral incentives (Rothbard 1978), not only among the recipients, but among those who are forced to pay for the programs. But the narrower question is not whether public assistance should be abolished, but whether, given that it exists and is likely to endure for a variety of political reasons, government birth control can reduce the incidence of dependency. To put the question another way, does government birth control lessen the problem of dependency, or is it an example of wading deeper into the swamp?

Methods

Using data for the 50 states, this study employs multiple regression analysis to investigate the relationship between public expenditures on contraceptives, sterilizations, and abortions on the one hand, and rates of dependency on Aid to Families with Dependent Children on the other, while controlling for important other factors. It also investigates the statistical effects of such policy measures as providing government-financed abortions and requiring parental involvement in minors' decisions regarding abortion. The results will be examined to see whether they indicate that publicly-funded birth control

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reduces or contains dependency, as is commonly claimed by supporters of such programs.

As shown in Table 1, rates of dependency on Aid to Families with Dependent Children in 1985 varied from 1.3 percent of state population in New Hampshire to 7.4 percent in Michigan. The factors contributing to the differences in the rates may include differences in state efforts to reduce unwanted pregnancy among low-income women. If government-subsidized birth control does indeed prevent unwanted pregnancy among such women, we should expect to find a negative statistical relationship between public expenditures for birth control and dependency rates when we isolate the effects of family planning from other factors affecting the rates of dependency.

There is also the problem of determining causation. Although statistical analysis in general can show association but not causation, there are some statistical tests for determining causation. To the extent possible, these tests are used in this study. In addition, to lessen the probability that the birth control expenditures are policy responses to a perceived problem of dependency, this study observes birth control expenditures two years prior to the year of the observed dependency rates. Table 1 shows that public birth-control expenditures per woman aged 15 to 44 in 1983 varied from $3 in Utah to more than $15 in California and $16 in Hawaii.

It is reasonable to believe that other factors having an impact on dependency may be unwed births, either as a proportion of total births or as a proportion of the population or some part of it; male unemployment, which renders fathers unable to support their children; the size of the average cash aid grant relative to other possible sources of income; race; the proportion of the population statistically defined to be in poverty; the age distribution of the population; and the rural–urban distribution of the population. Accordingly, this study investigates the impact which each of these factors has on dependency ratios. Table 2 presents a list of the variables.

The method of multiple regression permits estimation of the separate impact in which each factor has on dependency independent of the

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Table 1
AFDC Dependency and Public Birth-Control Expenditures Per Woman 15–44, by State, 1985

State	AFDC (1)	FPW (2)	State	AFDC (1)	FPW (2)
Alabama	3.7	$6.87	New York	6.2	11.69
Alaska	3.1	5.64	North Carolina	2.8	7.75
Arizona	2.3	4.95	North Dakota	1.9	5.04
Arkansas	2.8	6.87	Ohio	6.3	7.70
California	6.2	15.51	Oklahoma	2.6	6.58
Colorado	2.6	4.36	Oregon	2.9	5.55
Connecticut	3.7	7.27	Pennsylvania	4.9	10.23
Delaware	3.6	11.87	Rhode Island	4.6	3.56
Florida	2.4	3.19	South Carolina	3.8	10.71
Georgia	3.9	6.81	South Dakota	2.4	3.09
Hawaii	4.6	16.46	Tennessee	3.3	9.65
Idaho	1.6	5.26	Texas	2.4	8.36
Illinois	6.4	7.21	Utah	2.3	3.06
Indiana	3.0	4.37	Vermont	4.1	7.32
Iowa	4.3	6.01	Virginia	2.7	6.15
Kansas	2.7	4.10	Washington	4.3	7.09
Kentucky	4.3	8.03	West Virginia	5.9	6.33
Louisiana	5.3	12.18	Wisconsin	6.2	7.19
Maine	5.0	15.02	Wyoming	2.0	4.93
Maryland	4.5	5.20			
Massachusetts	4.1	7.04			
Michigan	7.4	9.71			
Minnesota	3.8	6.29			
Mississippi	6.0	12.69			
Missouri	3.9	3.46			
Montana	3.1	6.86			
Nebraska	2.9	4.15			
Nevada	1.6	5.94			
New Hampshire	1.3	5.02			
New Jersey	4.8	10.39			
New Mexico	3.5	8.69			

(1) AFDC5 = Number of persons, including children, dependent on Aid to Families with Dependent Children as a percent of the state's population, 1985, derived from *The Statistical Abstract of the United States*, 1987 and 1988, Tables 25 and 621.

(2) FPW = Total government expenditures on contraceptives, sterilizations, and abortions, by state, 1983, derived from Gold and Nestor, 1985, divided by number of women aged 15–44, by state, 1983, derived from National Center for Health Statistics, *Monthly Vital Statistics Report*, September 20, 1985.

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Table 2
Variables

AFDC5 - the number of persons, including children, dependent on Aid to Families with Dependent Children as a percent of the state's population, 1985, derived from *The Statistical Abstract of the United States*, 1987 and 1988

AFDCR - the ratio between the 1985 average AFDC monthly grant per family and average annual pay in each state, derived from *The Statistical Abstract of the United States*, 1988

AVU - the average level of male unemployment in each state for 1983–85, derived from *The Statistical Abstract of the United States*

BHPC5 - percent of total population that is hispanic or black, 1985, derived from intercensal estimates by the U.S. Bureau of the Census

FA - a dummy variable which takes the value of 1 if the state provides free abortions for girls dependent on their families for support and for low-income women, and equals zero otherwise, from Gold and Nestor, 1985

FPW - total government expenditures on contraceptives, sterilizations, and abortions, by state, 1983, derived from Gold and Nestor, 1985, divided by number of women aged 15-44, by state, 1983, derived from National Center for Health Statistics, *Monthly Vital Statistics Report*, September 20, 1985

lnAFDC - ln AFDC5

lnAFD5 - ln AFDCR

lnAVU - ln AVU

lnFPW - ln FPW

lnUR3 - ln UR3

lnUR4 - ln UR4

M80 - percent of state population living in metropolitan areas, 1980, from *The Statistical Abstract of the United States*, 1993

PIPC5 - disposable income per capita, 1985, from *The Statistical Abstract of the United States*, 1993

POVA - average percent of population below poverty threshold, 1979–1989, from *United States Census*, 1980 and *The Statistical Abstract of the United States*, 1993

PW1824 - ratio between number of females aged 18–24 and total population, 1984, derived from the U.S. Bureau of the Census, *Current Population Reports*, P25–1106, "State Population Estimates by Age and Sex: 1980 to 1992," November 1993

TAP5 - the sum of births and abortions per 1,000 women of age 15--19 in 1985, from Henshaw and Van Vort, 1989

UB3 - number of unmarried births per 1,000 state population, 1983, derived from the National Center for Health Statistics, *Monthly Vital Statistics Report*, September 20, 1985, and the U.S. Bureau of the Census

UB4 - number of unmarried births per 1,000 state population, 1984, derived from the National Center for Health Statistics, *Monthly Vital Statistics Report*, July 18, 1986, and the U.S. Bureau of the Census

UB5 - number of unmarried births per 1,000 state population, 1985, derived from the National Center for Health Statistics, *Monthly Vital Statistics Report*, July 17, 1987, and the U.S. Bureau of the Census

UR3 - the 1983 ratio between births to unwed mothers and total births in each state, from the National Center for Health Statistics, *Monthly Vital Statistics Report*, September 20, 1985

UR4 - the 1984 ratio between births to unwed mothers and total births in each state, from the National Center for Health Statistics, *Monthly Vital Statistics Report*, July 18, 1986

UR5 - the 1985 ratio between births to unwed mothers and total births in each state, from the National Center for Health Statistics, *Monthly Vital Statistics Report*, July 17, 1987

URA - unmarried births as percent of total births in each state, average for 1983 and 1984, derived from UR3 and UR4

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Table 3
Selected Entries from the Correlation Matrix

Variables	Correlation	Variables	Correlation
AFDC5, AVU	0.4308404	FA, TAP5	0.4852161
AFDC5, FPW	0.5676144	FPW, TAP5	0.4536160
AFDC5, UB4	0.3427625	FPW, UR4	0.4544095
AFDC5, UR4	0.4644188	M80, PIPC5	0.5791413
AFDC5, BHPC5	0.2434798	M80, TAP5	0.6147671
AFDCR, BHPC5	-0.5960336	M80, UR4	0.3694605
AFDCR, FA	0.3581167	PIPC5, TAP5	0.6150294
AFDCR, POVA	-0.6315263	POVA, TAP5	-0.1529815
AFDCR, UR4	-0.4565581	POVA, UB4	0.5012709
AVU, POVA	0.4121163	POVA, UR4	0.4196748
AVU, TAP5	-0.1061478	PW1824, UB4	0.2469489
AVU, UR4	0.0977951	PW1824, UR4	0.4196748
BHPC5, FPW	0.4093050	TAP5, UB4	0.6189787
BHPC5, M80	0.3752346	TAP5, UR4	0.6251695
BHPC5, POVA	0.5039383	UB4, UR4	0.8904237
BHPC5, TAP5	0.5769857	UR3, UR4	0.9943451
BHPC5, UR4	0.7910626		

other factors. In cases where such factors are statistically correlated, or intertwined, with each other, it is not possible to estimate the separate influence of each factor on the dependent variable. This is called the problem of multi-collinearity. Table 3 presents selected elements of the correlation matrix for the proposed independent variables. It shows, not surprisingly, that teenage pregnancy, race, and poverty are correlated with unwed births. It is appropriate, therefore, to omit some of these from the analysis, recognizing that the remaining one incorporates the effects of the others and that nothing is added to the predictive capability of the model by including the others. Also, the method of two-stage least squares is appropriate in situations where one or more of the independent variables may depend on some of the others. This method, which is used in this study, in effect regresses such variables first on the others and then regresses the dependent variable on all of the independent variables.

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Finally, a problem in statistical estimation can arise when the residuals from the regression are correlated with one or more of the independent variables. When this occurs, the estimates are still unbiased, but the tests of significance lose some of their reliability (Gujarati, chap. 11). This problem of "heteroscedasticity" arises in this investigation. It can be lessened or corrected by using the method of weighted least squares or by transforming the variables into logarithmic form, both of which are used in this study.

Results

Table 3 shows that dependency is correlated with male unemployment, family-planning expenditures, the unwed-birth ratio, race, and (moderately) with the ratio between the average cash grant and average pay in the state. It also shows that unwed births are correlated with race, poverty, teenage pregnancy, family-planning expenditures, metropolitan status, and unwed births in preceding years. Teenage pregnancy is correlated with race, free abortions, metropolitan status, and higher per-capita income, but not with male unemployment or poverty.

Table 4 gives regression results for unwed births, as a proportion of all births and relative to the total population of the state, showing that family-planning expenditures for 1983 are a significant factor in the unwed-birth ratio for 1984 and 1985, but free abortions are not. Table 4 also shows that poverty, race, and teenage pregnancy are significant factors in unwed births, but free abortions and unemployment are not.

Table 5 shows that teenage pregnancy is significantly and positively associated with free abortions, less so with family-planning expenditures, and negatively associated with male unemployment and the size of the average AFDC benefit relative to average pay. It also shows that teenage pregnancy is associated with higher levels of per-capita state income. Almost 80 percent of variations among states in teenage pregnancy are statistically explained by variations in per-capita income, race, and the availability of free abortions.

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Table 4
Regression Results, Unwed Births

Dependent Variable	1 Coefficient UR4	t-value	2 Coefficient UR4	t-value	3 Coefficient UR4	t-value	4 Coefficient UR5	t-value
Intercept	70.7047	2.6870	121.9942	10.6259	249.5284	7.4430	128.8992	3.0630
FPW	5.3683	2.5022	1.8976	1.1671	6.8878	3.7088	4.2802	2.4638
FA	19.5674	1.2465	14.2123	1.3447	27.5210	1.9387	-8.3938	-0.5793
POVA	5.8143	3.0620						
BHPC5			3.6120	7.8250				
AVU					-2.7754	-1.0847	0.8970	0.3850
AFDCR					-5832.1860	-4.7983	-3785.9880	-3.3547
TAP5							1.5119	3.9400
PIPC5								
Adj. Rsq.	0.2979		0.6375		0.4293		0.5566	

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Table 4 (Continued)
Regression Results, Unwed Births

Dependent Variable	5 Coefficient UR5	t-value	6 Coefficient UB5	t-value	7 Coefficient UB5	t-value
Intercept	140.1615	4.6773	2.1679	2.06	3.7253	6.1799
FPW	4.4288	2.6398	0.1167	3.5718	0.1128	3.3776
FA	-6.8505	-0.4967	0.0414	0.1505	0.2504	0.9809
POVA						
BHPC5						
AVU			0.0114	0.2435	-0.0120	-0.2618
AFDCR	-3949.0230	-3.8112	-88.0602	-4.0648	-81.3979	3.7244
TAP5	1.4640	4.0718				
PIPC5			0.0001	1.7876		
Adj. Rsq.	0.5650		0.3656		0.3346	

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Table 5
Regression Results, Teenage Pregnancy

Dependent Variable	1 Coefficient TAP5	t-value	2 Coefficient TAP5	t-value	3 Coefficient TAP5	t-value	4 Coefficient TAP5	t-value	5 Coefficient TAP5	t-value
Intercept	79.7733	7.1115	20.2705	1.9960	-41.7569	-1.7316	-13.7801	-0.6583	-17.9878	-1.9315
AVU	-1.9694	-2.3003								
FPW	1.7662	2.8422	1.3551	2.2869	1.4439	3.0053	0.7103	1.6954	0.7006	1.7101
FA	20.2636	4.2661	11.0458	2.5827	7.7981	2.1460	8.3535	2.7156	8.3758	2.7959
AFDCR	-1098.3520	-2.7007			-745.8603	-1.9643				
M80			0.4060	4.6884	0.1871	2.3157	0.0214	0.2616		
POVA			0.4008	0.7246	1.2590	1.7825	-0.1228	-0.1774		
PIPC5					0.0066	4.8691	0.0050	4.0746	0.0054	7.0923
BHPC5							0.8673	4.4718	0.8660	7.4922
Adj. Rsq.	0.4018		0.5190		0.7019		0.7783		0.7873	

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Table 6 presents the results of regression analysis of AFDC dependency. It shows that dependency is very significantly and positively associated with male unemployment. Dependency is also significantly and positively associated with the size of the average cash grant relative to average pay in the state and with unwed births. It is more closely associated with unwed births as a proportion of total births than with unwed births as a proportion of total state population. This may reflect the influence of the age distribution of the population; when the proportion of the population that consists of females between the ages of 18 and 24 is added as an explanatory factor (see Equation 4 in Table 6), the adjusted R-squared increases but unwed births become insignificant, probably because of multicollinearity between unwed births and the age distribution.

Free abortions have no significant effect on dependency, a result which contradicts widely-publicized claims (Torres et al. 1986), nor does teenage pregnancy directly, but teenage pregnancy affects unwed births, which increases dependency. Family planning expenditures per woman of reproductive age are positively and significantly associated with dependency.

Almost 90 percent of the variation among states in dependency rates are statistically explained by variations in male unemployment, the unwed-birth ratio, the size of the average cash grant relative to average pay in the state, public expenditures on family planning, and other factors represented by the intercept. This appears in Equations 6, 7, 9, and 10, which are weighted to correct for heteroscedasticity. The results of unweighted two-stage least-squares testing (Equation 8) are not greatly different from those of ordinary least squares (Equation 5); and the results of weighted two-stage least-squares testing (Equation 9) are not much different from those of least-squares weighted (Equation 6), suggesting that the model is not much affected by multi-collinearity among the explanatory variables.

The intercept term in Table 6 is negative and statistically significant, which may suggest that not all determinants of dependency are included in the models. Data by states on non-cash benefits to AFDC

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Table 6
Regression Results, AFDC Dependency

Method	1 LS		2 LS		3 LS		4 LS		5 LS	
Dependent Variable	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value
Intercept	-5.1055	-5.0045	-4.4407	-4.0109	-2.7415	-2.4498	-10.9260	-4.2857	-4.9613	-5.3510
AVU	0.3065	5.8047	0.2698	4.8402	0.2671	4.2110	0.3382	5.6736	0.3034	5.8840
FPW	0.1024	2.3686	0.1129	2.5512	0.1602	3.0872	0.1492	3.2342	0.1010	2.3694
FA	-0.1071	-0.3559	0.2384	0.6862	0.2147	0.6033				
AFDCR	164.1564	5.3919	153.2260	5.0724	109.0560	3.1270	125.0637	4.3709	159.1475	5.9529
UR4	0.0162	5.3327							0.0159	5.5017
UB4					0.4705	2.2359	0.3754	1.9838		
UR5			0.0184	5.1139						
TAP5			-0.0153	-1.4324						
PW1824							126.0618	3.3670		
Instruments										
Weight										
Adj. Rsq.	0.6868		0.6806		0.5369		0.6288		0.6928	

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Table 6 (continued)
Regression Results, AFDC Dependency

Method	6 LS(W)		7 LS(W)		8 TSLS		9 TSLS(W)		10 TSLS(W)	
Dependent Variable	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value	Coefficient AFDC5	t-value
Intercept	-5.2575	-4.3781	-5.4127	-4.9665	-4.8915	-5.2511	-5.2361	-4.3430	-5.3746	-4.9098
AVU	0.3398	6.3488	0.3488	7.2378	0.3028	5.8699	0.3397	6.3501	0.3484	7.2253
FPW	0.0887	2.0370	0.1289	2.3026	0.1034	2.4188	0.0894	2.0464	0.1306	2.3250
FA										
AFDCR	161.5980	5.4123	158.6257	5.1883	157.6556	5.8816	161.1250	5.3795	157.8051	5.1480
UR4	0.0162	4.5096	0.0151	4.2198	0.0156	5.3488	0.0161	4.4437	0.0149	4.1357
UB4										
UR5										
TAP5										
PW1824										
Instruments					UR3		UR3		UR3	
Weight	AFDC5, predicted		AVU				AFDC5, predicted		AVU	
Adj. Rsq.	0.8875		0.8516		0.6928		0.8872		0.8516	

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recipients are not available, and probably significantly affect the decision to apply for public assistance.

The intercept may also indicate that the relationship between dependency and the independent variables is not linear throughout. In the very unlikely event that all of the independent variables had zero value, then dependency might be zero but could hardly be negative.

Using the model in Table 6, Equation 9 to predict dependency for California in 1985, given that AVU, average male unemployment in 1983–1985, was 8.2 percent; that FPW, total government expenditures on contraceptives, sterilizations, and abortions per woman aged 15–44 in 1983 amounted to $15.51; that AFDCR, the ratio between the 1985 average AFDC monthly grant per family and average annual pay, amounted to 0.0245; and that UR4, the 1984 ratio between births to unwed mothers and total births amounted to 238.4 per thousand; AFDC5, the percent of the population receiving AID to Families with Dependent Children should have been 6.7 percent, compared to the actual rate of 6.2 percent.

Again, using the model in Equation 9, if FPW, family-planning expenditures, had been $1 more per woman, predicted dependency would have been 6.8 percent instead of 6.7 percent. If male unemployment had been 9.2 percent instead of 8.2 percent, predicted dependency would have been 7.1 percent instead of 6.7 percent. If the monthly cash grant had amounted to 3 percent of average annual pay in the state instead of the actual 2.4 percent, this would have increased predicted dependency to 7.6 percent. Taking account of the effects of family planning expenditures on unwed births as shown in Table 4, Equation 3, if FPW had been $1 more per woman, predicted unwed births would have amounted to 7 more per thousand, increasing dependency by a tenth of a percentage point.

Using the model in Equation 9 of Table 6 and 1992 data on government birth-control expenditures per woman aged 18–44 in California (Daly and Gold 1993) and data for 1992 and 1993 on male unemployment, the unwed birth ratio, and the monthly cash grant relative to average pay (*Statistical Abstract*, 1994, 1995), the model

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Table 7
Regression Results, Ln AFDC5

Method	1 LS		2 LS		3 TSLS	
Dependent Variable	Coefficient LnAFDC5	t-value	Coefficient LnAFDC5	t-value	Coefficient LnAFDC5	t-value
Intercept	-2.0748	-3.2495	-2.4167	-3.4258	-2.0165	-3.1452
LnAVU	0.5610	4.5763	0.5363	4.3216	0.5588	4.5573
LnFPW	0.2220	2.3513	0.2299	2.3991	0.2278	2.4082
LnAFDCR	0.6035	5.3161	0.5915	5.1444	0.5969	5.2484
LnUR4	0.8244	5.7081			0.8066	5.5439
LnUR5			0.8768	5.4853		
Instrument					LnUR3	
Adj. Rsq.	0.6571		0.6457		0.6570	

predicts that AFDC dependency in 1993 should have been 8.5 percent of the state population, compared with an actual rate of 8.3 percent.

Table 7 presents the results of logarithmic transformation of the variables, another procedure recommended for dealing with heteroscedasticity. The same relationships appear. A useful feature of logarithmic transformations is that they permit the estimation of elasticities. Thus, the results indicate that a one percent increase in male unemployment increases the dependency rate by more than 0.5 percent; a one percent increase in the average cash grant relative to average pay increases the dependency rate by 0.6 percent; a one percent increase in the unwed birth ratio increases the dependency rate by 0.8 percent; and a one percent increase in family planning expenditures per woman of reproductive age increases the dependency rate by about 0.2 percent.

There is, thus, a clearly positive relationship between dependency, unwed births, and teenage pregnancy, on the one hand, and government family-planning programs on the other. There is no evidence that the government birth-control programs reduce the problems which they claim to address. It is, nevertheless, possible that the programs represent efforts to control long-standing problems, and

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that, even though they appear in statistical models to be unsuccessful, the problems would be worse in the absence of the programs.

There are some statistical tests of causality that can be used to help resolve such ambiguous cases (Gujarati 1988, pp. 541–43). They proved not to be helpful in this study, however. What they chiefly showed is the very high year-to-year correspondence in state ratios of unwed births, rates of teenage pregnancy, and public expenditures on birth control. What they suggest is that public budgeting for "family planning" is the result of an embedded political process that continues to finance programs whether or not they correct problems and that the problems continue and increase despite the publicly funded programs ostensibly aimed at control.

The models in Table 6 were expanded to test for the effect of parental involvement laws, which require parental notification or permission for minors' abortions. Using a dummy variable to represent the existence of such a law, the results indicated that such laws do tend to reduce dependency, but the coefficients were not statistically significant. This is not surprising, since the girls under age 18 to which such laws apply accounted for only 15 percent of the total births to unmarried women in 1985 (13 percent in 1993) and only a fraction of these became dependent on public assistance. Even if regression analysis were to show a significant effect of such laws, this would leave unanswered the question as to their effects on surrounding states. That is, it may be that the chief effect of such laws is, as some have said (Cartoof and Klerman 1986), to send young girls out of state for their abortions.

Table 8 addresses these questions. It compares birth rates and abortion rates among teenagers in 1980 and 1988 for states having parental involvement laws in 1988 with the rates in surrounding states and in other states. The rates are weighted averages for the states in each of the three groups, the weights being the number of young women of age 15–19 in each state. The table shows that birth rates as well as abortion rates declined in the states having parental involvement laws, that there was no increase in the rates for surrounding states, and that

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Table 8
Weighted Average[1] Birth and Abortion Rates per 1,000 Women of Age 15–19 in States with Parental Involvement Laws, Surrounding States, and Other States, 1980 and 1988

	1980 Rate[4] of		1988 Rate[5] of		1980–88 Change in Rate of	
	Birth	Abortion	Birth	Abortion	Birth	Abortion
States with Parental Involvement Laws 1988\2\	55	33	51	32	-4	-1
Surrounding States\3\	55	40	54	40	-1	0
Other States	49	50	51	53	. 2	3
U.S.	53	43	53	43	0	0

[1]Weighted by numbers of women 15–19.
[2]Laws in force in 1988: Alabama, Indiana, Louisiana, Massachusetts, Missouri, No. Dakota, Rhode Island, and Utah.
[3]Arizona, Arkansas, Colorado, Connecticut, Florida, Georgia, Idaho, Illinois, Iowa, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New York, Ohio, Oklahoma, So. Dakota, Tennessee, Texas, Vermont, Wyoming.
[4]Singh 1986.
[5]Henshaw 1993.

both rates increased in other states. These results strongly suggest that families provide better guidance for young people than do state-subsidized birth controllers.

Conclusions

This study has found no evidence that public subsidies for contraceptives, abortions, and sterilizations reduce the incidence of public assistance, contrary to much-publicized claims. Quite the opposite, the results indicate that higher expenditures on government-subsidized birth control are associated with higher ratios of unwed births, higher rates of teenage pregnancy, and higher levels of dependency, while restrictions on access, in the form of parental-involvement requirements for minors' abortions, are associated with reductions in unwed pregnancies, births, and abortions.

The results also suggest that the higher the public-assistance benefit is relative to average pay, the higher the rate of dependency, which probably reflects the economic rationality of the recipients of

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public assistance, as well as the adverse-selection effect familiar to economists (that is, high public-assistance benefits attract immigrants).

The high and significant correlation between male unemployment and dependence on public assistance suggests that the most effective way of combating the so-called "welfare problem" may be to improve labor markets—that is, to free them from the prevailing government restrictions—rather than to subsidize birth control. Many economists have called attention to the government's major role in producing unemployment (Rothbard 1978; Williams 1982; Vedder 1993; Lindbeck 1995).

This study has demonstrated the futility of trying to reduce dependency by means of yet another public intervention—government-subsidized birth control. Austrian economics has shown the diverse ways in which government-transfer programs distort incentives, both among those who receive the transfers and those who pay the taxes to finance them (Rothbard 1978, pp. 142–70). A moment's reflection shows why this should be so in the case of government birth control. One reason may lie, as some authors have suggested, in the "moral hazard" effect—that is, the encouragement which public "family planning" programs give to sexual risk-taking which would not occur to the same extent in the absence of the programs (Baumol and Blinder 1991, p. 257). Also, the operators of public-birth control programs need a measure of their "productivity" to justify the continuation and growth of their subsidies. The number of "acceptors" of contraceptives, sterilizations, and abortions serves as this measure. Hence, recruitment of customers for such subsidized services is essential. Such recruitment efforts will be most effective when concentrated among those not already served by private providers—that is, among the unmarried, young, and inexperienced, and those with little income of their own. High school and college students provide an ideal market, and the very large efforts at sex "education" and recruitment of these potential customers should come as no surprise. These activities will obviously

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tend to increase the problems which they propose to correct, as the evidence indicates (Marsiglio 1986). The recruiters, however, will argue that the problems would be much worse in the absence of their efforts, as we have seen.

In addition, the subsidies constitute an incentive to inflate the reported number of users of the "services." For example, performing "abortions" on non-pregnant clients appears to be common (Rhomberg 1980, p. 63).

Finally, the recipients of subsidies have the means and the motive to engage in heavy lobbying of government officials and courting of the media to ensure the continuation and growth of their largesse, and to plead that the reason their programs do not produce the promised results is that they do not yet have enough financing. Government-financed Planned Parenthood operates its own research agencies, publishes its own journals, and engages in extensive litigation to promote government birth control. Through its research arm, the Alan Guttmacher Institute, the agency distributed its highly influental glossy booklet *ll Million Teenagers: What Can Be Done about the Epidemic of Adolescent Pregnancies in the United States* to government officials, newspaper writers, parent–teacher organizations, churches, youth organizations, and other creators of public opinion throughout the nation (Kasun 1988, p. 117). A typical Planned Parenthood clinic, which derives most of its income from government sources, spends tens of thousands of dollars annually on lobbying government officials, and on travel for that purpose (Six Rivers Planned Parenthood 1994). In addition, clinic personnel play an active role in party politics.

Politicians, therefore, face a watchful, committed, government-financed special interest group, ready to administer swift punishments and rewards for their actions, while the general public remains largely indifferent.

Obviously, none of these activities can be expected to reduce the incidence of sexual risk-taking and the unmarried births and dependency to which it leads. On the contrary, they should be expected

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to increase it, as indicated by the results of this study. The results, therefore, confirm Austrian economic reasoning and, indeed, what common sense would suggest.

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Statistical Malfeasance and Interpreting Economic Phenomena

Richard Vedder

It took seven decades, but most people now accept what Ludwig von Mises explained three quarters of a century ago, namely, that centrally directed socialistic economies cannot succeed in coordinating vast numbers of interrelated decisions, in large part because of the information problem arising from non-market forms of resource allocation (Mises 1920). No amount of input-output models generated on vast computers can overcome the problems of directing resources under changing conditions of wants and scarcity.

The information problem that plagued socialist states, like the old Soviet Union, persists in another form today in so-called "mixed" economies like the United States. While the price data generated by markets, as consumers and producers interact in a productive, if seemingly chaotic, discovery process, allow decentralized economic agents to make complex and ever-changing economic decisions without any central direction; governments try to generate data which aggregate economic activity over entire economies to assist the softer forms of economic planning that persists in most of the industrialized democracies—fiscal and monetary policy,

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environmental rules, governmentally mandated distortions in the use of energy resources, and so on.

On methodological grounds, Austrian economists reject the logical-positivism of most contemporary economics. Even if one were raised in a neoclassical tradition that places a high utility on evaluating economic phenomena in terms of some analogue of the scientific method present in the physical sciences, however, one should be wary of many modern research findings, owing to the inherent and probably insurmountable difficulties of aggregating economic data. Bad data lead to bad conclusions, even if one accepts an activist economic philosophy that centralized decision making can improve on the spontaneous decisions made in the market economy. This paper presents five examples of how data problems can lead to a misinterpretation of economic phenomena, or at least promote great uncertainty in evaluating the direction and scope of economic change.

Example One: Are Wages Rising or Falling, or, Are Workers Being Exploited?

Public figures as politically diverse as former Labor Secretary Robert Reich, Pat Buchanan, and Ross Perot have argued that the standard of living of American workers has stagnated in recent decades. Reich blames it on greedy businessmen, while Buchanan and Perot claim that as a consequence of ill-considered free-trade policies, low-paid foreign workers are robbing Americans of their affluence. Is this unholy trinity right?

Using the method of mainstream economics, let us turn to the purported evidence to evaluate the scenarios of three economists whose names began with "M": Malthus, Marx, and Mises. Which economist do you like? Using contemporary data, I can give you evidence to support the views of any of them.

Go to the allegedly trusty source of current economic information, the *Economic Report of the President* (U.S. Council of Economic Advisers, various years). Turning to page 352 in the 1997 edition, the

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hourly average wage of private sector American workers in 1973, expressed in dollars of 1982 purchasing power, is stated to be $8.55. For 1996, it was only $7.43. Workers were making 13.1 percent less in 1996 than a generation earlier. On a weekly basis, the wage decline was even greater. This is evidence that Malthus was right. With population growth and the law of diminishing returns, wages are moving toward subsistence.

Or maybe Marx was right. Turning the page, we learn (page 354) that the output per hour in the same period has risen more than 30 percent.[1] Productivity was rising significantly even while wages were falling—we have a total refutation of the Austrian claim (Mises 1963, p. 597) that workers are paid according to their marginal productivity. We have progressively greater exploitation of the proletariat by greedy capitalists. If this scenario is true, Bill Gates and Sam Walton make capitalists like the Vanderbilts and the Rockefellers look like Mother Teresa. Why did Marxism largely wither away (except in universities) when we needed it to explain the growing absolute and relative misery of the American worker?

Alas, there is another side to the story. Michael Boskin and some other distinguished number crunchers have concluded that the consumer price index used to calculate real-wage change overstates inflation by about 1.1 percentage points a year, and has done so for a long time.[2] Earlier, the price gurus at the Bureau of Labor Statistics as much as admitted that their CPI-U index suffered significantly by overstating housing prices after 1967, and concocted a CPI-U-X1 index. It was generally believed around 1980 that adopting the X1

[1]Output per hour in the "business sector" shows an increase of 30.2 percent from 1973 to 1996. The 1996 figure was assumed to be the average of the second and third quarters of the year. Using data for the "nonfarm business sector," the increase is only 25.8 percent. Implicit in the difference between these two estimates is farm-sector productivity growth of a huge magnitude (perhaps 100 percent), given the relatively small size of that sector.

[2]For a discussion by mainstream economists of problems with the consumer price index, see the *1997 Economic Report of the President*, pp. 67–72.

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procedures would improve factual accuracy, but our government did not do so because, among other things, it would have reduced Social Security cost-of-living benefit increases. Hence, for political reasons, the U.S. government continued to use an index that everyone says was wrong. Using the X1 index and reducing annual inflation rates by 1.1 percentage points annually, I calculated a new and presumably improved measure of changing rates of inflation (see appendix).

"Boskinizing" the data, real wages in fact rose 9.4 percent an hour from 1973 to 1996, rather than fell as officially reported. Using the method of contemporary mainstream economics, we can say that, empirically, the Malthusian–Marxian scenario described above has now taken a hit, but, alas, the wage growth is still well below the reported productivity growth of 30.2 percent. In other words, Marx is closer to the truth than Mises, or, for that matter, than Alfred Marshall.

Don't despair yet. Marx is about to take a big hit. Page 354 of the *Economic Report* covers "real compensation per hour" in the "business sector." This table incorporates into employee compensation the fringe benefits excluded from the wages measure, and thus is a more comprehensive measure of the remuneration that workers receive from their employers. Even using the flawed BLS data on inflation, it is revealed that real compensation per hour rose 9.1 percent from 1973 to 1996. So much for Malthus. Applying the X1 and Boskin adjustments to the CPI (see sppendix), I calculate that real compensation per hour in fact rose 42.8 percent from 1973 to 1996. Workers are doing much better than their parents did a generation ago.

Has Mises been vindicated by the very quantitative approach that he disdained? Not exactly. Wages, broadly defined, are now recorded as having risen faster than productivity. If correct, this implies that corporations are being financially squeezed by labor, either by accident or design. We have reverse Marxism—the proletariat is squashing the capitalists—the withering away of capitalism, if you will. Alternatively, a benevolent, "kinder and gentler" breed of entrepreneur is voluntarily turning over income to workers.

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This latter conclusion, however, is murky, since it compares rising real compensation to productivity change. Productivity is defined in terms of real output per hour of work. Thus, the calculation of productivity involves using a price index, and if that index has been understated, then the recorded productivity growth has similarly been below reality. A large number of students of productivity data believe there is an understatement of modern productivity growth. Correcting for that misstatement, it is plausible and indeed likely that the real-wage data and the productivity data would show very similar upward trends, consistent with both Austrian and neoclassical traditions in economics. Mises is thus vindicated.

All of this reinforces Austrian concerns about attempting to verify or falsify economic propositions based on aggregative economic data. At the same time, as Professor McCloskey (1985) tells us, the rhetoric of modern economics includes heavy use of numbers and econometric manipulation of them. Only partly tongue in cheek, I think it is legitimate to use Austrian praxeological principles to clarify some of the existing statistical mayhem. To illustrate, accept the Austrian proposition that wages are determined by the marginal productivity of labor. The rate of growth in aggregate prices over time, then, would equal that growth necessary to be consistent with this Austrian proposition. If Boskin's 1.1 point adjustment to the CPI leads to wage growth exceeding productivity change, while no adjustment leads to productivity changes exceeding wage growth, the correct adjustment is one that equates these two measures, perhaps 0.5 or 0.7 percentage points. Since, given the rhetorical passion of economists for quantitative measures, we are going to use price indices; why not use Austrian insights to calculate them, even if Austrians themselves are disdainful of their use? I say this with some trepidation, ever mindful of Mises's magisterial injunction: "In the field of praxeology and economics no sense can be given to the notion of measurement"[3] (Mises 1966, p. 222).

[3]Mises's views were anticipated by the English economist J.E. Cairnes (1888). See also Rothbard (1993), chap. 5.

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Example Two: The Worsening Post-World-War-II Depression[4]

Problems with price indices can lead to grotesque and changing interpretations of historical phenomena. According to the official national-income-account data, the nation had a huge downturn in 1946. Moreover, unique among downturns in American history, it continues to get worse—even after the downturn is over. In 1960, the U.S. Department of Commerce reported that the national output decline for 1946 had reached an extraordinary 14 percent. With the historical revisions reported in 1995 (U.S. Council of Economic Advisers), the calculated output decline for the year 1946 was 20.6 percent. This is greater than the accumulated reported decline for 1931 and 1932 during the darkest part of the Great Depression.

Yet, all of this happened while consumer spending was rising sharply, the unemployment rate was under 4 percent, and the stock market was registering double-digit gains, with the Standard and Poor industrial index reaching the highest level since 1929. The statistical fiction that official national-income indicators show reflects the switch from largely command, non-market-based output in 1945 to a much more market-determined output with a dramatically downsized public sector. The end of the wage-and-price controls meant that inflation moved from being disguised to being explicit. Perversities in the way the aggregate GDP price deflator is calculated meant that the shift from public to private activity substantially increased the recorded GDP price deflator for the economy. Over time, the difference in the reported increase in prices in the public and private sectors meant that the post-war shift back to private enterprise increased the aggregate price index *independent of price movements*.

Thus, revisions in statistics years after they are originally compiled do not always lead to greater accuracy. Given the fundamental

[4]See Vedder and Gallaway (1991, 1997) for a more detailed analysis of this example.

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problem of evaluating government activity that is not sold in markets, any aggregate output statistic is subject to considerable debate. As Robert Higgs (1992) has shown, under one very reasonable method of accounting, the Great Depression actually persisted until the mid-1940s, rather than decisively ending with America's entry into World War II.

Example Three: Are We Undergoing Deindustrialization?

The contradictory data are present within a single edition of the *Economic Report of the President*. For example, some people have spoken about the "deindustrialization" of America, presumably referring to a sharp decline in the relative importance of manufacturing in the American economy. Using nominal data from page 312 of this year's report (U.S. Council of Economic Advisers 1997), this observation is confirmed, with manufacturing's share of gross domestic product falling by nearly one-fourth in just 17 years from 1977 to 1994 (from 22.81 to 17.27 percent). Looking at the next page (p. 313), where the data are expressed in real terms, one observes manufacturing's share of output falling only very modestly, from 18.61 to 17.68 percent of GDP. Hardly major deindustrialization.

Example Four: Is Government Growing or Declining in Relative Size?

With respect to government, the conclusions are just the opposite. With the data expressed in real terms, the government by 1994 was about a 20 percent smaller proportion of the economy than in 1977; with nominal data, the decline was only one-third as great. Adding to the confusion, the measured change of relative size in government varies depending on whether one looks at tables B-1 and B-2, B-8 and B-9, or B-10 and B-11. Turning to data on total current expenditures of government on page 394, we learn that government as a

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percent of GDP, grew from about 30 to 32 percent from 1977 to 1994, reflecting the impact of income transfers not included in the basic GDP classifications. Moreover, none of these measures picks up the impact of coercive governmental regulation or mandates on the private sector, which almost certainly have grown in relative importance over time.

As with earlier examples, the hazards of price indexation contribute importantly to the contradictory findings. For example, the statistics supposedly correcting for inflation use an index for governmental services to deflate, which is, at best, a highly speculative exercise, given the non-market nature of governmental activity. In general, governmental services are valued in the GDP accounts by adding up compensation paid to employees, which is to say on payments to inputs rather than a valuation of output. Given the very high levels of economic rent present in much government employment, this is a doubly dubious procedure. After all, one group of employees is not paid according to its marginal contribution to society, it is government employees (Cox and Brunelli 1994).

Example Five: Is the Economy Doing Well or Poorly?

Even most mainstream economists acknowledge significant difficulties with the measurement of aggregate economic performance. The official GDP statistics suggest that the worst post-war year in terms of total output change was 1946, while the best was 1951. The former year saw the nation convert from a wartime to a peacetime economy, and from a price-controlled economy to one in which prices were more or less free to fluctuate with market forces.

The exact reverse happened in 1951. The 1951 boom came in part by forcing human resources into employment at below-equilibrium wages—the military draft. The allegedly good performance came from coercive tactics, and by valuing an important part of output not by the subjective evaluations of consumers and producers, but by the non-market prices paid to governmentally directed inputs.

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Even if one accepts the concept of GDP as a reasonable way of evaluating the performance of an economy, however, there are significant practical difficulties. I randomly selected the year 1993 for evaluation. In the *1994 Economic Report of the President*, it is reported that the 1993 GDP rose 2.9 percent—close to the long-term growth rate of somewhat over 3 percent. By 1995, the 1993 growth rate had been revised upward to a healthy 3.1 percent. The consensus was that 1993 was a pretty good year. The next year, the government changed its mind, deciding that GDP in 1993 rose but 2.2 percent, one of the lowest non-recessionary year growth rates in modern American economic history, and about 30 percent less growth than reported merely a year earlier. In 1997, the estimates were revised upward again slightly, to 2.3 percent. We not only had second thoughts about 1993, but third and fourth thoughts as well ended on December 31, 1993, and any change in its GDP after that date is an admission of prior statistical reporting error. The admitted errors are substantial.

All of this, of course, ignores the question of whether GDP, or any measure for that matter, is appropriate to evaluate aggregate economic performance. Consider the question: is the American economy doing well today? Those answering that question affirmatively cite statistics showing low unemployment, high employment-population ratios, rising exports and industrial production, significant immigration of human and capital resources to the U.S., and a booming stock market. Yet, the standard national-income framework, I think, is more consistent with a "no" answer to that question. The latest in the ever-changing GDP statistics shows that annual real GDP change has varied from -1.0 to 3.5 percent in this decade, with the median being about 2.5 percent. The median growth in the 1960s was 4.5 percent, in the 1970s was 4.1 percent, and in the 1980s was 3.2 percent. If these numbers are to be believed, then the 1990s is easily the worst performing of recent decades. Moreover, the long-run secular trend seems to be ever-lower rates of economic growth. Will the real American economy please stand up?

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You Don't Have to be an Austrian to be Austrian on Statistics

Even accepting the dominant method of modern economics, and believing that the use of empirical means to verify or falsify economic hypotheses is valid, the reality of data aggregation problems makes empirical exercises a hazardous and often dubious enterprise.

This comes as no surprise to Austrian economists. On basic theoretical grounds, the problems of generalizing with any precision about the magnitude of price changes are substantial. In Rothbard's (1993) "evenly rotating economy" with freely operating market forces, the issue of aggregate economic performance is one that is either irrelevant or of a second order of importance. If economic agents are freely expressing their economic will in their decision making, the existing level of economic performance *is* optimal, and whether it is larger or smaller than in other time periods is not very important.

The discussion above merely samples the problems of using aggregate economic statistics. Other examples abound; four will suffice. First, hundreds of billions of dollars of underground and non-market activity distort aggregate statistics on national income and domestic product. Second, the problem of estimating poverty rates is so entangled that the government itself in some years issues not only *the* poverty rate but some 29 other variations, with the top estimate being at least three times the lowest one (U.S. Department of Commerce, 1992). Third, the national savings rate is radically different if one uses Federal Reserve data as opposed to Department of Commerce data.[5] Fourth, U.S. exports to Canada are reported as being significantly different from Canadian

[5]To illustrate this, it is best to go to the *Statistical Abstract of the United States* (U.S. Department of Commerce, Washington, D.C.: U.S. Government Printing Office, 1997). Compare the data on changing financial assets in Table 771 with those in Table 697. Household net financial assets in, say, 1993, rose by $752 billion in Table 771, but "personal savings" in Table 697 was only $216.4 billion—a difference of a factor of more than three.

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numbers on imports from the U.S. More generally, the "errors and omissions" component of balance-of-payments statistics is often huge in magnitude.[6]

Some aggregate statistics are no doubt reasonably reliable. For example, I trust the numbers on total steel production. Changes in the factor shares in aggregate national-income data probably give better insight into whether labor is earning its marginal product than the wage-productivity data discussed above. Basic data on individual interest rates or individual commodity prices are probably pretty good. Moreover, the private economy in its planning wants, and is willing to pay, to get some aggregate economic data, even mediocre data. That explains why otherwise sensible businessmen pay economists to do forecasts. If GDP didn't exist, someone would invent it.

The statistical mayhem described above suggests that one can find data to support almost any economic theory. The notion that mainstream economists practice science while Austrian economists are more like theologians is, at the very least, an exaggeration. Many mainstream economists selectively use data to defend preconceived positions. They try to add legitimacy to often bankrupt intellectual positions by invoking the mantle of science. On average, I think, Austrians are more straightforward and intellectually honest. The moral of my little story, then, is: beware, government statistics may be injurious to your economic health. Treat them gingerly and with suspicion, as Austrian economists have long done. Indeed, when it comes to government statistics, ignorance often may well be bliss.

[6]In the *1997 Economic Report of the President* (p. 415), the median statistical discrepancy (ignoring the direction of the discrepancy) in the years 1989 through 1995 was $31.5 billion, nearly as much as the nation's purported "unilateral transfers."

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Appendix

Below is the official CPI-U (1982–84=100) and the author's reconstruction of it incorporating the X1 and Boskin price adjustments.

Date	CPI-U	CPI-U-X1-BOSKINIZED
1973	44.4	50.3
1974	49.3	55.4
1975	53.8	59.7
1976	56.9	62.0
1977	60.6	65.3
1978	65.2	69.5
1979	72.6	75.8
1980	82.4	85.2
1981	90.9	93.1
1982	96.5	97.8
1983	99.6	99.8
1984	103.9	102.4
1985	107.6	104.9
1986	109.6	105.8
1987	113.6	108.5
1988	118.3	111.7
1989	124.0	115.8
1990	130.7	120.8
1991	136.2	124.6
1992	140.3	127.6
1993	144.5	129.4
1994	148.2	131.3
1995	152.4	133.3
1996	156.9	136.1

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Some Austrian Perspectives on Unintended Consequences

Lowell Gallaway

One of the most overused notions in this about-to-expire century, is the concept of "unintended consequences." In its strongest form, it emerges as the Law of Unintended Consequences, a generalized explanation for a host of public policy failures in American society. A seemingly innocent enough concept, it attempts to explain away why so many ventures into the realm of formulating public policy have gone awry, by asserting that things didn't happen the way policymakers thought and "intended" that they would. (As if this excuses the nonsense that has passed as policy in our time.) In the vernacular, this is nothing but a "cop-out," a *deus ex machina* that disguises the true source of failed public policy—a refusal to appreciate the full implications and ramifications of public policy initiatives for human action.[1]

The choice of the words "human action" is not casual. It is symbolic, intending to call to mind the Austrian traditions of subjectivism and individualism. This is in contrast to the conventional social science approach of thinking in terms of mechanical analogues that seemingly parallel the physical, or "hard," sciences. The adverb

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[1]Of course, the phrase human action brings to mind Ludwig von Mises's tome, *Human Action: A Treatise on Economics* (Chicago: Henry Regnery, 1966).

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"seemingly" is employed in fairness to the physical sciences. All too often, the parallelism that social scientists attempt to draw between their work and that of the physical sciences involves mere parodies of what the "hard" sciences do.

Example One: Tax Revenues and Tax Rates

Let us illustrate the pitfalls associated with this kind of crude mechanistic approach to economic phenomena. A marvelous example occurs in the area of anticipating the impact of changes in tax rates on the amount of revenues collected from the tax in question. What is involved here, depending on the direction of change in tax rates, is one of two basic principles: (1) If you tax something, you get less of it, or, (2) If you subsidize something, you get more of it.

Both of these notions derive from a very simple idea, namely, that individuals take the tax burden into account before choosing their work and entrepreneurial effort. The significance of these propositions is borne out by some very simple numbers produced by recent American experience.

What is reported is the percentage that personal tax and non-tax Federal government receipts, almost exclusively from the personal income tax, were of nominal (not real) Gross Domestic Product for three dates, 1979, 1989, and 1995.[2] These are all years of relatively high levels of economic activity. In 1979, these revenues amounted to 8.98 percent of GDP. Ten years later, following at least a 25 percent reduction in tax rates and the introduction of indexation of the tax rate schedules, they stood at 8.52 percent of GDP, a decline of only 5.79 percent, instead of the expected 25 percent. Almost 80 percent of the potential decline in revenues from the income tax rate cuts of the 1980s had been offset by the dynamic

[2]The basic data are from the National Income and Product Accounts, U.S. Department of Commerce, Bureau of Economic Analysis. See *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, 1977), table B-80, p. 393.

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effects of individuals responding to the cuts by increasing their work and entrepreneurial effort.

Move on to 1995. In the interval since 1989, there were two increases in personal income tax rates. What happened to the share of personal tax revenues out of GDP? It actually fell slightly, coming in at 8.48 percent as people adjusted their economic efforts to take account of higher tax rates.

There is a lesson to be learned here, one that those among us with some familiarity with American economic history and an appreciation for the role of individual behavior in shaping economic events already know. In recent years, it has been popularized in the form of the Laffer Curve.[3] More generally, though, the lesson is that human behavioral responses to changes in economic parameters frequently lead to non-monotonic, that is Laffer-type, outcomes.

An Aside on "Mainstream" Economists

Apparently, the lesson just described is little understood by a substantial portion of the American economics profession. Just last September, some 546 economists, including seven Nobel laureates, signed a public statement released by the Economic Policy Institute in Washington, D.C., asserting the following[4]:

> (1) the assumption that a substantial part of the revenue lost by reducing taxes will be offset by new revenues from additional growth is not credible.
>
> (2) The . . . tax-cuts of the early 1980s were based on [this] claim, but . . . no sustainable increase of growth of supply took place.

[3]Current interest in the Laffer Curve concept is rising. In the week following the presentation of this article, a conference with the theme "Innovative Applications of the Laffer Curve" was held in Washington, D.C.

[4]Press release title *546 Prominent Economists Oppose Dole Tax Cuts: Plan's Assumptions "Not Credible" According to Group* (Washington, D.C.: Economic Policy Institute, September 24, 1996).

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> (3) The . . . tax-cuts of the early 1980s were appropriately called a riverboat gamble. The country lost a wager. . . . We appeal to our fellow citizens and our potential leaders not to repeat the tragic mistake.

This statement was circulated by Paul Samuelson, James Tobin, Kenneth Arrow, Franco Modigliani, and Robert Solow.

C'est la vie. Never mind that our imperfectly measured economic growth averaged 3.2 percent between 1981 and 1989, compared to 2.4 percent in the previous eight years and 1.8 percent since. This "sustained growth in supply" was just sufficient to insure that, in the long run, there was no decline in tax revenues associated with the reductions in income tax rates that took place in the 1980s. On the other hand, the end result of the tax increases of the 1990s was a fall in revenue of about 9 percent. Talk about unintended consequences.

Example Two: Income Maintenance and Poverty

The tax episode is not the only instance of economists and policymakers ignoring individual behavioral responses to changes in economic circumstances. Let us go back in time a third of a century, to the early and mid-1960s. The poverty issue becomes the crisis *du jour* for the intellectual and policy elites, and becomes enshrined in American history in the form of Lyndon Johnson's euphemism, "The War on Poverty." The basic premise of the first generation of poverty warriors was that America's relatively disadvantaged were becoming increasingly isolated from the mainstream of economic and social life in the United States. In short, the argument was made that a permanent underclass would emerge in America unless substantial policy interventions were implemented.

Initially, the rhetoric surrounding the proposed public policy initiatives was opposed to income transfers, *per se*, focusing instead on programs that supposedly would better equip the economically disadvantaged to participate in American economic life. For example, in February 1962, the *New York Times* commented (favorably) on

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John Kennedy's message to Congress that accompanied his proposals for welfare reform. It noted that the President's position "stems from a recognition that no lasting solution to the [poverty] problem can be bought with a welfare check."[5] As to Lyndon Johnson, when he signed the first substantial anti-poverty legislation in August 1964, he proclaimed, "the days of the dole in this country are numbered."[6] I use this statement frequently in my Economics of Poverty class, and I can never resist adding something to it, namely, that, "Unfortunately, Lyndon forgot to tell us that it was a very, very, large number," now approaching 12,000. Within two years of the passage of the 1964 legislation, a monumental escalation of the volume of Federal public aid (in real terms) occurred. Between 1954 and 1966, the *per capita* volume of such aid roughly doubled, an annual growth rate of about 6 percent. In the next 12 years, *it doubled not once, but twice, representing annual growth of about 12 percent.*[7]

Refer back to the two basic propositions mentioned earlier. In this case, we have a subsidization of non-work effort. The expected outcome of this is an increase in the volume of non-work effort and a decrease in work activity. As Walter Williams once said, " The poor may be poor, but they are not stupid."[8] The behavioral changes brought on by the escalation of subsidies for not working impacted dramatically on another of our terribly flawed government statistics—the poverty rate, which is measured by a paradigm that counts only cash–money income towards meeting the poverty threshold. Since a large part of public aid expenditures are not in the form of cash money, the work disincentive effects associated with public aid

[5]"Relief is no Solution," *New York Times*, February 2, 1962.

[6]"Johnson Signs Bill to Fight Poverty: Pledges New Era," *New York Times*, August 21, 1964.

[7]For details of the escalation, see Lowell Gallaway and Richard Vedder, *Poverty, Income Distribution, the Family, and Public Policy* (Washington, D.C.: U.S. Goverment Printing Office, 1986), pp. 36–37.

[8]This remark was made in a personal conversation during a visit to the Ohio University campus by Professor Williams in October 1986.

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will at some point lead to a reduction in the money income of the poor. Because of this, as the volume of public aid increased after 1966, the decline in the poverty rate first slowed, then stopped, and, ultimately, began to increase, producing another Laffer-style relationship, one that Professor Vedder and I have called, "The Poverty–Welfare Curve."[9] Just one more unintended consequence.

Example Three: The Distribution of Income

One more example is appropriate. As we have moved through the twentieth century, the rhetoric of "envy" has become progressively more strident. Perhaps it was inevitable once the United States committed itself to a "progressive" income tax. Given the potential of the income tax to raise revenue and its avowed philosophy of taxing the "rich" more heavily than the "non-rich," the development of a tax-and-transfer mode of government was predictable. The ultimate justification for a tax-and-transfer society is expressed quite well in a quote from the most recent *Economic Report of the President*[10]:

> Without government intervention, the distribution of income would be even more dispersed than it is. A progressive Federal income tax and a variety of Federal and State transfer programs have for decades worked to reduce inequality.

This allegation appears plausible, at first glance. However, reflect on the contents of the previous section of this paper, where it was noted that individual behavioral responses to the provision on in-

[9]The Poverty–Welfare Curve was introduced at a June 20, 1985, hearing held by the Joint Economic Committee of the U.S. Congress. See Lowell Gallaway, Richard Vedder, and Therese Foster, "The 'New' Structural Poverty: A Quantitative Analysis, in *War on Poverty—Victory or Defeat?* (Washington, D.C.: U.S. Government Printing Office, 1986).

[10]*Economic Report of the President*, 1977.

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come transfers not only negated their supposed beneficial effects in reducing poverty but actually increased the number of people officially recorded as being among the poverty population. Apparently, the same thing happens with respect to the distribution of income.

Once more I will refer to some empirical data. In 1969, income transfers to persons in the United States amounted to 9 percent of all personal income. Twenty-five years later, that figure was 16.6 percent.[11] What happened to income inequality over this interval? Using a very simple measure of inequality, the ratio of mean income of the bottom 20 percent, it increased substantially. This ratio rose by almost 45 percent between 1969 and 1994.[12] Once more, we have an "unintended consequence" emanating from a public policy initiative.

The Curse of "Unintended Consequences"

The three examples outlined here illustrate a very basic point, namely, that a failure to take into account behavioral responses in structuring public policy leads to results that are often the opposite of what the rhetoric of the public policy debate suggests will happen. The instinctive response to this is usually, "How unfortunate. The designers of the public policy meant well. Their motives were good. We shouldn't think badly of them for their efforts." But, were their motives really good? Perhaps one mistake of this sort would be understandable, but multiple ones, in the face of powerful evidence documenting the nature of the errors? That is another matter. Perhaps the Law of Unintended Consequences should be relabeled, The Law of Deliberately Ignored Consequences.

Why, though, would policymakers wish to ignore the consequences of their actions? The answer to that query is simple. More often than not, this behavior supports an even more fundamental agenda of the public policy elites, the expansion of the role of government in social and economic affairs. Think of how convenient

[11]Ibid., table B-27, p. 331.

[12]Based on data reported in *Current Population Reports*, Series P-60, Income and Statistics Branch/HHES Division

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it is. Define a problem. Propose a solution that has the effect of expanding the role of government. In the goodness of time, the solution makes the problem worse, which permits the policy advocates to claim that the problem is more serious than originally thought, and that the initial government response was inadequate to deal with it. The obvious solution is to have the government devote even more resources to solving the problem. There is a parallel here with the bloodletting practices of medieval "doctors." They would "bleed" the ill, which would have the "unintended consequence" of weakening them, making them become more ill, which would then become the rationale for bleeding them again, and again, and again, until they died. At that point, the doctors would note that the patient was sicker than they had thought.

But what about data such as those I have just cited? How do the policy elites deal with this? Simply ignore them. There is a delicious bit of irony here. In the past, I have heard Austrian economists caricatured as being people who say if the numbers don't agree with the theory, so much the worse for the numbers, implying that they are "non-scientific" ideologues. However, that is exactly how the policy elites, and much of the mainstream of the economics profession, behave. They often fit almost perfectly that very caricature. Take the earlier aside about the Nobel laureates introduced toward the beginning of this paper. There are a number of empirical studies that say there is a significant dynamic effect associated with income tax-rate changes that mutes the static impacts on revenue. Yet, these people, in effect, take the stance that since these numbers do not agree with their conceptual paradigm, so much the worse for the numbers. Or, take the case of the statement from the *Economic Report of the President* about the effect of government on the distribution of income. This was released under the signature of Joseph Stiglitz, a distinctly mainstream economist.

Further, I simply can't resist reporting two more classic instances of the mainstream types blatantly ignoring numbers that contradicted their basic theoretical notions. The first takes place in 1947.

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Lawrence Klein, future Nobel laureate and pioneer in the construction of macroeconometric models, has just had published his book, *The Keynesian Revolution*.[13] In dealing with two empirical studies, one by Lorie Tarshis and the other by John Dunlop,[14] that challenged a casual empirical observation made by John Maynard Keynes in *The General Theory*,[15] Klein blithely dismisses them with the remark, "Our main concern is not with the empirical problem, but with the theoretical."[16]

My second example is taken from some private correspondence with another Nobel laureate, Kenneth Arrow.[17] The beginning sentence of one of his letters starts, "I have not had time to consider the empirical issues in determining what relation, if any, exists between inflation, GDP growth, and excess capacity." Having said that, he then proceeds to pontificate for almost two pages as to what the relationships are. Just as with Lawrence Klein, the attitude seemed to be, "Don't bother me with the data."

There is an unfortunate aspect to all this: numbers have a certain power about them. They often dominate the rhetorical playing fields of both intellectual and policy debate. If the Austrian community abjures this rhetorical device, it concedes a good deal to those who will use numbers selectively to pursue an agenda that is at odds with the conclusions derived from the Austrian deducto-logical frame-

[13]Lawrence R. Klein, *The Keynesian Revolution* (New York: Macmillan, 1947).

[14]Lorie Tarshis, "Changes in Real and Money Wages," *Economic Journal* 49 (1939): 150–54, and John Dunlop, "The Movement of Real and Money-Wage Rates," *Economic Journal* 48 (1938): 413–34.

[15]Keynes's remark may be found in chapter 2 of his *The General Theory of Employment, Interest, and Money* (New York: Harcourt Brace, 1935). Specifically, on page 10, he offers the following opinion, "I think that the change in real wages associated with a change in money-wages, so far from being usually in the same direction, is almost always in the opposite direction." Tarshis and Dunlop, "The Movement of Real and Money Rates," found that in both the United States (Tarshis) and Britain (Dunlop), real and money-wage rates were significantly *positively* correlated.

[16]Keynes, *The General Theory*.

[17]Letter, dated December 29, 1992, from Kenneth Arrow to Lowell Gallaway [sic].

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work. In the process, they will allow these purveyors of misinformation a significant advantage as they pursue their statist agenda. In short, it might be well for Austrians to heed the advice of Robert Higgs, given at the conclusion of a piece assessing the New Economic History, namely[18]

> these findings can serve as valuable material for Austrians practicing their own distinctive style of interpretive economic history.

It may seem that I am delivering something of a schizophrenic message. On the one hand, I have suggested that, from the methodological standpoint, Austrians have a good deal of company among the mainstream economists who often, especially in the instances described by the rubric The Law of Unintended Consequences, deny the validity of numbers that do not accord with their analytical perspective. On the other hand, I suggest that Austrians place themselves at a decided disadvantage in public policy debates if they ignore the rhetorical power of numbers.

This suggests a dilemma. What to do? All I can offer as a solution is an anecdote. In the summer of 1983, Professor Vedder and I had an extended conversation with Murray Rothbard in Palo Alto, California, concerning our paper that was published in the first issue of the *Review of Austrian Economics*. At one juncture, I pointed out to Murray that there were regression equations in the paper and asked whether that would be a problem. His response, as nearly as I remember was, "No! You guys do econometrics right." What did Murray mean by that? While I can't be sure, I suspect he was suggesting the inverse of the logical-positivist approach to knowledge, that is, rather than testing the validity of theories by consulting the evidence, you test the validity of the evidence by observing how well it fits the theory.

[18]Robert Higgs, "Austrian Economics and the New Economic History," *Austrian Economics Newsletter* (Summer 1995): 2–3.

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Block's Erroneous Interpretations

Harold Demsetz

Walter Block has absorbed 64 pages of *The Review of Austrian Economics*[1] to attack a 19-page paper I wrote.[2] This is his second outburst. The first, to which my 1979 paper was partly a response, appeared in *The Journal of Libertarian Studies*.[3] Block should have put this matter behind him rather than stewing over it for the 16 years between his current reply and my 1979 paper. I learn nothing from reading his part of this debate, and apparently he learns nothing from reading my part, so I write this reluctantly and refuse to join in any future similar exercise in futility.

In my response to his first paper, I wrote both about the error in his economics and the naiveté in the moral positions he took. I invite the reader to consult the above-referenced papers if he or she desires to know more about the moral issue. My intent here is to write briefly and to confine my comments to the central economic arguments

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[1]Walter Block, "Ethics, Efficiency, Coasian Property Rights, and Psychic Income: A Reply to Demsetz," *Review of Austrian Economics* 8, no. 2 (1995): 61–125.

[2]Harold Demsetz, "Ethics and Efficiency in Property Rights Systems," in *Time, Uncertainty and Disequilibrium: Explorations of Austrian Themes*, Mario Rizzo, ed. (Lexington, Mass.: D. C. Heath, 1979), pp. 97–116.

[3]Walter Block, "Coase and Demsetz on Private Property Rights," *Journal of Libertarian Studies* 1, no. 2 (Spring 1977): 111–15.

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made by Block in his latest critique. Block's rumination on morals merits no response from me.

The economic argument concerns Coase's[4] analysis of the resource-allocation consequences of alternative assignments of ownership rights. His well-known analysis presented a view of the externality problem different from that held by Pigou (and, at the time Coase wrote, from that held by the economics profession). In the introduction to my 1967 paper "Toward A Theory of Property Rights,"[5] I referred to Coase's analysis to show its applicability beyond Pigouvian-type externality situations, briefly noting military recruitment as an example:

> The taxpayer benefits [from a military draft] by not paying the full cost of staffing the armed services. The costs that he escapes are the additional sums that would be needed to acquire men voluntarily for the services or those sums that would be offered as payment by draftees to taxpayers in order to be exempted. With either voluntary recruitment, the "buy-him-in" system, or a "let-him-buy-his-way-out" system, the full cost of recruitment would be brought to bear on taxpayers. . . .
>
> A law that establishes the right of a person to his freedom would necessitate a payment on the part of . . . the taxpayer sufficient to cover the cost of using that person's labor if his services are to be obtained. The costs of labor thus become internalized in the . . . taxpayer's decisions. Alternatively, a law that gives the . . . taxpayer clear title to slave labor would necessitate that the slave owners take into account the sums that slaves are willing to pay for their freedom. These costs thus become internalized in decisions although wealth is distributed differently in the two cases. All that is needed for internalization in either case is ownership which includes the right of sale . . .

[4]Ronald Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (1960): 1–44.

[5]Harold Demsetz, "Toward a Theory of Property Rights," *American Economic Review* 57 (1967): 347–59.

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> There are two striking implications of this process that are true in a world of zero transaction costs. The output mix that results when the exchange of property rights is allowed is efficient and the mix is independent of who is assigned ownership (except that different wealth distributions may result in different demands).[6]

This example, for reasons known better to Block than to me, led him to make the following outrageous charge: "I shall then consider what can only be considered immoral implications Demsetz draws from Coase's view of property."[7] On this score, I note only that my conclusions were an exercise in positive economics, but if one truly desired to detect my preferences, as between the alternatives considered, all he would need to observe is where I placed the words "freedom" and "slave" in the above quotation. The positive economic conclusions I drew from this example contained nothing really new. They are simple extensions of, and in accord with, conclusions drawn by Coase in his analysis of Pigouvian externalities. What is novel is the non-Pigouvian context.

Block's strategy in his newest critique is two-fold. First, he seeks to separate Coase and Demsetz, claiming that his original critique of positive economics properly applies only to Coase's conclusions, not to mine. He makes this distinction simply because Coase was not as explicit as I was in the parenthetic reference to income effects in the above quotation. I note that he did not separate Coase and Demsetz in his original critique. Having defended his earlier attack on Coase, the second step in his present critique is to extend the coverage of his complaint to even my conclusions. I consider these steps in turn.

To separate Coase and me, Block serves up his interpretation of Coase's writings. His claim is that Coase's conclusions are invalid because Coase makes no statement equivalent to mine in its explicitness in regard to income effects. Coase, of course, is quite capable

[6]Ibid.: 349. The parenthetic phrase is contained in the original.
[7]Block, "Coase and Demsetz on Private Property Rights": 111.

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of speaking for himself, but I find Block's interpretation of Coase quite unreasonable and quite lacking in any real attempt at understanding. Coase's statement about the consequences (in a zero-transaction cost case) of a court's decision regarding the right to control an externality-relevant resource is that the decision "would not affect the allocation of resources but would merely alter the distribution of income" as between the two parties, plaintiff and defendant.[8]

Persons trained in economics, which is the audience Coase was addressing, would know that an alteration in income distribution generally implies a change in resource allocation, simply because the two parties before the court spend their incomes differently. Coase should have no need to make this point explicit. Block takes the opportunity afforded him by the incompleteness of Coase's exposition to interpret Coase as claiming that different incomes result from the court's decision, but that these differences in income generate no derivative effects on resource allocation.

Block is entitled to his interpretation, but it is unreasonable. A reader seeking to understand Coase could easily understand why he does not waste words on the obvious. He is dealing with Pigouvian *efficiency* conclusions in regard to externalities. One could simply modify the quotation from Coase by rewriting the first phrase to read "Would not affect the *efficiency* of the allocation of resources." This would be entirely within the spirit of Coase's article, and is an accurate reflection of Coase's disagreement with Pigou. The modified statement completely undermines Block's criticism of Coase. Incomes might be altered by the court's decisions, and these altered incomes would affect resource allocation, but they would not affect the efficiency of resource allocation. After all, it is the efficiency of allocation, not the specific allocation of resources, that is Pigou's issue.

[8]Coase, "The Problem of Social Cost": 5, cited in Block, "Ethics, Efficiency, Coasian Property Rights, and Psychic Income": 64.

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Perhaps more important, the misallocation in resources that Pigou (and the profession) saw as a consequence of externalities *has nothing to do with changed consumption expenditures resulting from altered incomes*. For Pigou, a laundry cleans too few clothes and a neighboring factory produces too much output because the factory owner fails to take account of the costs that soot from his factory imposes on the laundry owner's operations. The inefficiency does not come from the reduced consumption that might follow from the greater poverty in which the laundry owner finds himself as a result of soot from the factory. In demonstrating the error in Pigou's logic, it is only necessary for Coase to show that all costs of the interaction between the parties are taken into account. A laundry owner made wealthier by a court's decision in his favor spends more on a variety of goods, and a factory owner made poorer by the same decision spends less on a different variety of goods, but what has this to do with the logic that connected externalities to inefficiency? Absolutely nothing. It would have been a waste of time for both Coase and his readers to use several paragraphs to discuss the changed pattern of expenditures that can result from a change in the distribution of income, only then to deny its relevance to the externality question. Hence, he simply writes that the court's decisions can alter the wealth between the two parties. Block, in his most recent critique, uses Coase's brevity to support a claim that Coase, although he noted the change in income distribution that would result from the court's decision, erred by not concluding that, as a result, resource allocation would be affected. But it is Block who is wrong, for he confuses the changed consumption patterns that accompany a redistribution of wealth with the Pigouvian logic that derives an inefficient alteration in resource allocation from the failure of one party to take into account the effect his activity is having on the production cost of a second party.

The second statement referred to by Block is one used by me in commenting on his first criticism of the logic used by Coase and me:

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> The substantive issue has to do with whether or not the assignment of right ownership will alter the mix of output when "bargaining transactions . . . are costless [and] changes in the distribution of wealth . . . can be ignored." Coase and I [with a proviso about "free riders"] say no; Block says yes.[9]

I clearly state that an unaltered mix of output requires both that transaction cost should be zero, and the income effects should be absent, so Block cannot level at me the same trivial debating point he levels at Coase. He is required, if I am to be found in error, to show that a change in resource allocation follows from a change in ownership identity, and that this does not result from positive transaction cost or an income effect. To do this, he again trivializes the issue, this time by renaming income effects as psychic effects.

The case in point is an interaction between a factory and a neighboring homeowner. Soot descends on the neighbor's soil, making it unfit to grow a garden. The neighbor, if he owns the right to control the soot content of air, refuses to allow the next door factory to put soot into the air, and he does so even if the factory offers him a sum equal to the cost to it of installing a smoke stack soot cleaner. This clearly reveals that in this state of affairs, the gardener puts a higher value on his garden than the sum he foregoes. Suppose, however, that the factory has the right to control the soot content of the air. To preserve his garden now, the gardener must pay the factory to have it remove soot from the air. However, his wealth position is such that he cannot afford to pay for the installation of the soot cleaner even if he were to devote his entire wealth to the task. Hence, if he owns the right to control the soot content, there is a garden and no soot. If the factory owns the right, there is soot and no garden. Resource allocation is altered, yet we are assuming no cost of negotiating between the two parties. Has an income effect produced the reallocation? I say yes. Block says no. He writes:

[9]Demsetz, "Ethics and Efficiency in Property Rights Systems": 98.

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> All that is necessary is that there be an otherwise penniless farmer who derives more value from his flower bed than the cost of installing a smoke prevention device, and cannot bribe the factory to install it, even though he inhabits a zero transaction costs world. He cannot do so . . . because even though his psychic income [from a garden] is $100,000, and the smoke prevention device costs a mere $75,000, this psychic income is specific to him and him alone. It does not translate into a value recognized by anyone else, particularly including the factory owner. He cannot sell this flower bed to a third party, and use the proceeds to bribe the factory owner. This is because the flower bed, his only possession, is not valued by anyone else besides himself. . . . It is impossible for him to "give up $75,000 of the other goods" (as claimed by Demsetz in his indifference curve analysis) because he simply does not have such funds available to him.[10]

The last phrase "because he simply does not have such funds available to him" sounds like an income effect to me. If the gardener possessed much wealth, he would buy the clean air his garden needs, but if he is poverty-stricken he will not. That he will not because he "cannot" does not make this any less an income effect. From the perspective of the economic analysis of income effects, there is no difference between a person not purchasing good X because he desires to spend his wealth on other goods and a person not purchasing good X because he hasn't the wealth to make the purchase. In both cases, more of good X will be purchased if more wealth is provided to this person.

Consider the last sentence in the quote from Block more fully, because it misrepresents my indifference-curve analysis. The figure from my paper referred to by Block conveyed the following message. It says that if the gardener owns the right to control the soot content of the air, he can have his garden and still continue to consume as much of

[10]Block, "Ethics, Efficiency, Coasian Property Rights, and Psychic Income: A Reply to Demsetz": 71.

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other goods as has been his habit. Alternatively, he can give the garden up by selling permission to the factory owner to put soot in the air, in which case, because of the payment he receives, he can buy $75,000 of other goods. This is $75,000 more of other goods than he could have bought by doing without his garden if he did *not* have the right to control the soot content of the air (but the factory owner did). This clearly establishes that the gardener's budget constraint is different under the two possible court decisions, and that is what I portray in the indifference curve figure to which Block refers. It should be obvious to everyone (other than Block) that the right to control soot content is valuable. Hence, the court's decision does alter the wealth of the parties. That the gardener is too poor to buy clean air when he does not possess this right cannot constitute a denial of this wealth effect. That he does buy clean air when he possesses this right is clear from the fact that he forsakes the $75,000 he could have received were he willing to tolerate soot (and the loss of his garden).

Why is he willing to buy the garden by foregoing $75,000 if he owns the right but not if the factory owns the right? Since we are assuming that his preference map has remained unchanged across the court-determined alternatives, the explanation for his changed behavior can only reside in the altered position of his budget constraint. His refusal to accept the receipt of $75,000 to give up his garden (if he possesses the right) is an implicit cost to him of retaining the garden. In effect, contrary to Block's assertion about the gardener's inability to sell the garden to anyone, the garden can be sold to the factory for $75,000. If the gardener does not possess the right to control the soot content of the air, this implicit $75,000 is converted to an explicit cost of retaining the garden, for now the gardener must pay $75,000 to the factory owner to secure the needed reduction in soot. Hence, the price to retain the garden is the same in both cases, $75,000, but in one case this price is measured by income foregone and in the other case by income spent. This conversion from implicit to explicit cost *is* a reflection of the altered distribution of wealth wrought by the court. With the gardener's utility map unchanged and the price

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for retaining the garden unaffected by the court's decision (i.e., implicit and explicit cost are simply two different ways in which this $75,000 price enters the utility maximization equation), the gardener's changed behavior can only result from the wealth effect that accompanies the switch from an implicit to an explicit cost.

Block cannot deny the altered behavior, because this is necessary for him to claim that resource allocation has been changed as a result of the court's decision, but he cannot attribute the change either to transaction cost or to income effect if he is to sustain his refutation of my conclusion. Wealth clearly has been changed by the court's decision, the gardener's utility function has not been changed, and the price of the garden, $75,000, has not been changed. Well, there seems nothing left for Block to do than to admit that resource allocation has changed because of an income effect.

How does Block maintain his critique? Why, by changing the name of the income effect to that of psychic effect. Block's discussion of psychic value versus market value is the way he slips this change into the discussion. But, why is psychic value exercised one way if the gardener owns the right to control soot content and exercised the other way if the gardener does not? Is his case any different from someone who thinks a building is underpriced by the market but refuses to buy it because he is too poor, and then, after inheriting some wealth, makes the purchase? Does it matter to the definition of income effects in economics whether the reason he believes the building is undervalued is (a) because he thinks he can generate higher money income (than "the market" thinks) from renting the space out or (b) because (although the market estimate of income is correct) he derives additional "non-marketable" personal utility from his being identified as the owner of this particular building? There is no analytical difference between these cases, and they are both properly classified as income effects when associated with the change in this person's behavior that results from his inheritance.

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Fiat Money as an Administrative Good

Yuri Kuznetsov

Hans-Hermann Hoppe, in his excellent article "How Is Fiat Money Possible?—or, The Devolution of Money and Credit,"[1] explained that fiat money can come into existence through the progressive degeneration of commodity money substitutes. I would like to suggest an additional scenario by which fiat money can come about, a scenario which may be useful for understanding some events in recent Russian history.

Imagine a community with a barter economy where a group of men are permitted to impose a great deal of violence on their fellow citizens. Let's call this group the State. The State prints paper tickets denominated in numbers, passes them out to the population, and declares that everyone must hand over a certain amount of these tickets to the State or face a harsh punishment, say, five years in prison. When the State acquires these tickets, it exchanges them for goods and services.

The tickets distributed in this way have some important properties. First, they have an initial use-value for members of the community (excluding members of the State): they can be used as a means of rescuing oneself from physical violence. Second, they are very

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[1] *Review of Austrian Economics* 7, no. 2 (1994): 49–74.

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marketable because they can be distributed in any denomination (divisibility). Third, they are small and do not weigh much (transportability). Fourth, they are universally desirable because no one wants to be in prison.

These properties make the tickets very competitive in the Mengerian process of the origination of money. The State could increase its chances of winning the competition with other monies by restricting the ability of people to contract with competing commodities like gold and silver. This step, however, is not necessary provided the sanctions for not paying the tribute are sufficiently severe and unavoidable.

In other words, fiat money can originate by the Mengerian process of selection, but only if it can be exchanged for specific goods, such as the ability to escape aggressive violence. Thus, governmental taxation provides one means by which fiat money could come into existence. Indeed, in our scenario, taxation is the essential cause of the money's origin.

This fiat money is not irredeemable. It is *redeemable* in a peculiar commodity: an escape from violence. Clearly, this is not money based on mutual confidence and consent, and neither does it conform to Hoppe's strictures against injustice in the process of money origination.[2]

It is worth noting that in reality, the nature of the *commodity backing* is rather indistinct. Enforcement of any decree is never fully guaranteed. Anyone deciding whether to pay or not to pay a tax always takes into account the probability of being punished for the failure to pay. This probability, in turn, depends on various factors influencing the efficiency of the government's machinery of violence.

Reorganizing various policing agencies and tax-collecting departments, anti-corruption campaigns, and other political disturbances

[2]Hoppe asks, "can fiat money arise as the natural outcome of the interactions between self-interested individuals; or, is it possible to introduce it without violating either principles of justice or economic efficiency?" (p. 49).

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could considerably change the subjective valuations of this money's market value. These phenomena, along with inflation, could be an additional source of financial instability.

This scenario may appear to be rather abstract and far from real life. But this appears to me to not be the case. This mental construction is a useful device for interpreting recent events of Russian economic history.

According to a number of Russian economists, the late Soviet economic system might be properly described as an administrative market—a kind of barter economy where not only usual goods and services are marketable, but so are such peculiar items as contents of governmental regulations and planning directives, the opportunity to violate them without penalty, official posts in the state apparatus, and so on.[3] Such peculiar *commodities* might be named administrative goods, because their value for economic actors is rooted in the ability of the State to use violence, and of everyone else to avoid this violence under certain conditions.

The *barter* character of Soviet economics is synonymous with its non-monetary nature. There were no media of exchange. The Soviet rubles in no sense could be called *money*. However, Gregory Gaidar's reform in 1992 not only abrogated some regulations (the determination of prices in rubles by government), but also monetized the Russian economy. The newly created money was a fiat money backed by *administrative goods* according to our definition.

The scenario I have described approximates the real process of the creation of fiat money in the Russian economy during the reforms from 1990 to the present. The reform had two major features:

[3]See V. Naishul, *The Supreme and Last Stage of Socialism* (London: Center For Research into Communist Economics, 1991); idem., "Liberalism, Customary Rights and Economic Reforms," *Communist Economies and Economic Transformation* 5, no.1 (1993); idem., "Communism: Death or Transformation?" presented at the Mont Pelerin Society General Meeting (Cannes, 1994); idem., "Perspectives on Economic Reforms in Russia," *Champions of Freedom* 21 (Hillsdale, Mich.: Hillsdale College Press, 1994).

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the Russian governmental apparatus was completely reorganized, and huge changes were made in tax legislation to make collection easier and more profitable for the State. This combination was probably an important cause of the ensuing financial instability (the value of the fiat money was continually in flux), an instability that was exacerbated by inflationist policies and continuing political uncertainty.

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Capitalism: A Complete and Integrated Understanding of the Nature and Value of Human Economic Life. By George Reisman. Ottawa, Ill.: Jameson Books, 1996. Pp. i, 1046. $95.00. ISBN 0-915463-73-3

George Reisman was a student of both Ludwig von Mises and Ayn Rand. Yet, Reisman's *Capitalism* discusses few typically Austrian or Objectivist themes. Amazingly, in a more than 1,000-page book, ostensibly influenced by both *Human Action* and *Atlas Shrugged*, there is no index entry for entrepreneurship. Nor will one find entries for the market process, subjective value, or evolution. Austrian business-cycle theory and welfare economics are unexpectedly under-represented. This list of lacuna is brought forward not as criticism, but to emphasize that, particularly in its most original aspects, *Capitalism* stands somewhat apart from any school or living tradition. Mises and Rand have influenced *Capitalism*, but surprisingly, Reisman's greatest influences are Adam Smith, David Ricardo, and John Stuart Mill.

The Division of Labor

Reisman begins *Capitalism* with a classical theme, the importance of the division of labor. In a wonderful section, he mixes standard Smithian themes with ideas from Mises, Hayek, and Rand to achieve important insights into a division of labor society:

> What a division-of-labor society represents is *the organization of the total sum of human brain power in a way that enables it to store and use vastly more knowledge than would otherwise be possible*.... In those areas, where the overwhelming majority of people live as virtually self-sufficient farmers, each family knows essentially what all the others know about production.... After

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> interviewing the first such family in each area, very little additional information would be gained from interviewing the hundreds of millions of other such families. What this means, in essence, is that the sum total of the knowledge used in production in a non-division-of-labor society is limited to what the brain of just one or two individuals can hold.... such a situation is a case of wasteful duplication. It is the wasteful duplication of the mental contents of the human brain—the wasteful use of man's ability to store and use knowledge. In this respect and in this sense, a division-of-labor society is indispensable to the efficient use of the human mind in production. (p. 124, italics in original)

Continuing on in this vein, Reisman notes that specialization of knowledge in a division-of-labor society increases the total amount of knowledge which is available to society. Perhaps more importantly, a division-of-labor society lets geniuses specialize in the creation of ever more knowledge. The division of labor lets us exploit increasing returns to IQ.

Having established the vital importance of the division of labor for a prosperous society, Reisman turns to showing how the division of labor depends on capitalism. A division-of-labor society requires massive amounts of exchange, and thus requires prices and a unit of account so that economic calculation can occur. Crucially, it is "The consideration of prices which integrates and harmonizes the plans of each individual with the plans of all other individuals and produces a fully and rationally planned economic system under capitalism" (p.137). With an understanding of the importance of prices as coordination devices, Reisman turns in Chapters 6–8 to the formation and operation of free-market prices and the disaster of price controls.

Chapters 6–8 of *Capitalism* are updated versions of Reisman's previous book, *The Government Against the Economy*. It was praised by both F.A. Hayek and Henry Hazlitt as an introduction to the principles of economics. The value of the book as an original contribution to the socialist calculation debate has, however, been under-appreciated.

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Reisman begins his analysis of socialism by analyzing the effects of a single price control in a free-market economy, showing how a price which is controlled below the market price creates a shortage. But Reisman goes far beyond the typical presentation of price controls found in modern microeconomics texts. He demonstrates, for example, how price controls create chaos in the geographic distribution of goods. In a free market, more urgent demanders can outbid less urgent demanders for access to, say, the supply of oil. Thus, a severe winter storm on the East Coast causes individuals on the East Coast to bid up the price of oil in the East, giving entrepreneurs incentives to ship oil to the East from the West where it is demanded less urgently. If the price of oil is controlled, entrepreneurs no longer have an incentive to equilibrate markets. While some individuals in the East freeze for lack of oil, other individuals in the West find they have more than enough oil for even relatively minor uses. Similarly, price controls cause chaos in the functional distribution of factors of production. One would expect that during an oil shortage, the production of oil would be utmost priority. Yet when oil was controlled in the 1970s, oil rigs off the coast of California could not get enough (refined) oil to operate. In a free market, the owners of the oil rigs would have attracted oil by bidding up the price. Instead, because of the price controls, the owners of the rigs were forced to petition the authorities for an increase in oil rations. A single slipup by a bureaucrat can cause absurd misallocation of resources.

Building on his analysis of a single control, Reisman demonstrates how the negative effects of multiple controls feed into one another and multiply the chaos. As more and more controls are added, we finally reach a situation of universal price controls which, in all essentials, is equivalent to socialism. Under a system of universal price controls, shortages exist for almost all goods, and goods are allocated in an almost completely irrational manner. Reisman's procedure, extrapolation from a single price control to a system of universal price controls, makes brilliantly clear Mises's argument about the impossibility of rational calculation under socialism. It has become

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common to explain Mises's argument as an apodictic conclusion from *apriori*-type reasoning. This has led to confusion and endless debate on the status of the term "impossible" in Mises's argument. Rational calculation is impossible under socialism, not in the sense that it is impossible for two parallel lines to ever meet, but in the sense that it is impossible for a man to run a 30 second mile unaided. If 40,000 U.S. bureaucrats armed with the fastest computers and advised by the smartest economists could not rationally allocate a single good, oil, then it is certainly impossible that any group of bureaucrats could rationally allocate hundreds of thousands of goods across space, time, and function. After reading Reisman's analysis in the original, I felt for the first time that I truly understood Mises's argument. Today, I use Reisman's procedure to explain the impossibility of rational calculation under socialism to my principles students.

Price controls also

> break the harmonious union of the self-interest of buyer and seller that prevails in a free market and replace it with an altruistic relationship between the two. In this relationship the customer is reduced to impotent pleading for the customary service and customary quality that the seller no longer has any economic motive to supply. Indeed, all of the seller's motives, both economic and non-economic, now work in the direction of reducing the quality of his product and the service associated with it. (p. 239)

Thus, price controls cause a reduction of quality, consumer impotence, and buyer and seller hatred. Building on this insight and others Reisman explains how universal price controls must inevitably lead to slavery and totalitarianism. To Mises's impossibility of rational calculation, Reisman adds the impossibility of benevolent government under socialism.[1]

[1]Reisman's analysis of socialism belongs to the field of what most economists would call political economy or public choice. Thus, it is rather odd that Reisman insists that economics is the science of wealth, and that Mises is confused when he calls economics a branch of a larger field which studies human action (see, p. 42

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Some Problems

One annoying problem with *Capitalism* is that almost everything Reisman says about neoclassical economics is wrong. One particularly painful example occurs at the end of chapter 5, where Reisman argues that neoclassical economics has a circular concept of demand which cannot explain prices. Neoclassical economics, he writes,

> explains each individual price on the basis of demand and supply. But the demand curve in each case *presupposes* all other prices in the economic system....Yet if the formation of those other prices is to be explained on the basis of demand and supply curves, then the price of the good in question, which is supposedly first to be explained by demand and supply curves, must already be presupposed. (p. 169 italics in original)

This is the sort of error which is easily corrected by a simple mathematical analysis, but evidently causes great confusion in purely verbal reasoning. Assume that the demand for A depends on the price of B, and the demand for B depends on the price of A, as, for example, in the following equations.

$$Q_d^a = 10 - P_a - \frac{P_b}{2}$$

$$Q_d^b = 17 - 3P_b - \frac{P_a}{6}$$

An equilibrium occurs if supply equals demand in both markets. Assume that the supply of A is fixed at 5 and the supply of B is fixed at 7, then equilibrium occurs when:

$$10 - P_a - \frac{P_b}{2} = 5$$

and

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and chap. 2, n. 12). The post-1950 rise and contributions of public choice, social choice, law and economics, and Chicago-school sociology make it eminently clear that Mises's understanding of economic method is correct.

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$$17 - 3P_b - \frac{P_a}{6} = 7$$

Contra Reisman, it is a simple matter to solve these equations to find

$$P_a = \frac{24}{7} \quad \text{and} \quad P_b = \frac{22}{7}$$

Mathematically, prices in the two markets are determined "simultaneously." Economically, they are determined by the market process, a dynamic process of shortages, surpluses, profits, losses, and entrepreneurial actions which push prices towards their equilibrium values (Kirzner 1973). Reisman seems to suggest that the price of one good could somehow be determined independently of all other goods. But this is manifestly false; there is no alternative to "simultaneous" determination via the market process.

A related annoyance is Reisman's use of the so-called classical theory of price determination. According to Reisman, the classicals conceived of demand "as an amount of expenditure of money, such as $1 billion, while supply is to be understood as an amount of a good or service offered for sale" (p. 152). To illustrate, Reisman presents the following equation:

$$P = \frac{D}{S}$$

Where D is understood as an expenditure of money and S a quantity of goods.

Whether classical or not, this "theory" of price determination is untenable. How can consumers decide how much to spend on a good without first knowing the price? Are we to believe that consumers choose to spend, say, $1 billion on Coca-Cola without first knowing the price of Coca-Cola? If, for some unspecified reason, the supply of Coca-Cola falls, will consumers continue to spend just as much on Coca-Cola as previously?[2] And how do suppliers decide how much to

[2]This type of behavior can be rational, but only for a limited class of utility functions.

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supply without first knowing the price?[3] The theory of demand and supply explains the market price, the quantity demanded, and the quantity supplied. Reisman's so-called classical theory explains nothing.[4]

Most of what Reisman says about neoclassical economics can safely be ignored without affecting the value of *Capitalism*. Reisman's use of the classical theory of price is also not a big problem, at least not to anyone who knows to ignore the theory whenever it appears. But the theory does appear sporadically throughout the book, especially in the sections on the quantity theory of money and wage formation. Reisman accepts the classical doctrine of the wage fund which is simply the above equation applied to the price of labor. (Take P as the price of labor, D as the demand for labor considered as a fixed monetary expenditure like \$1 billion, and S as the fixed quantity of labor supplied.) This theory makes no more sense applied to wages than to any other price.[5] Fortunately, Reisman doesn't take the theory too seriously and manages to argue to the correct conclusion that the average wage is determined by the average productivity of labor.[6] Unfortunately, he argues against the marginal

[3]One could argue that S is fixed in the very-short run but then the classical theory is, at best, a theory of very-short-run price determination—not a particularly useful theory.

[4]Of course, in equilibrium, Reisman's equation is correct. As a matter of logic when $Qd = Qs$ then $p = p \times Qd/Qs$, but the equation tells us nothing about price determination.

[5]To Reisman's credit he quotes at length Mill's famous rejection of the wages-fund doctrine (pp. 664–65). After reading Reisman and re-reading Mill, I continue to side with Mill.

[6]Reisman is incorrect to think that this conclusion is at odds with the marginal productivity theory. Let total output be a function of capital and labor, written $Y = f(K,L)$. By Euler's theorem (see any math economics text) and constant returns to scale, $Y = F_K K + F_L L$, where F_K, F_L are the marginal productivity of capital and labor respectively. Marginal productivity theory says $w = F_L$ and $r = F_K$ where w is the wage rate and r the rental rate on capital (and the output price has been normalized to 1). Substituting we have $Y = rK + wL$ and rearranging

$$w = \frac{Y}{L} - r\,\frac{K}{L}$$

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productivity theory of wages which is accepted by both neoclassicals and Austrians (see, for example, Rothbard [1962]).[7]

Reisman misrepresents the marginal-productivity theory of factor pricing and also the neoclassical theory of price, which in all essentials is the same as the Austrian theory (i.e., the irrelevance of "cost"), because he does not appreciate the difference between partial- and general-equilibrium reasoning. In both cases, Reisman's errors are errors of interpretation. Reisman's own theory of price, for example, is in essence the neoclassical and Austrian theory.

According to Reisman, the marginal-productivity theory of factor pricing implies that the price of any factor is determined by the marginal value product of that factor.

> Thus, the marginal-productivity theory implies that the price of automobile parts, for example, is determined on the basis of the portion of an automobile's utility that is lost if the part in question is not present.... [But] if one asks how much of a car's utility or value depends on its having a steering wheel, any one of its four wheels, or accelerator pedal, fuel pump, carburetor, and so on, the answer over and over again, is the whole value, or at least the far greater part of the value, of the automobile.... [Therefore] if the value of the parts is to be determined

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which says that average wages are equal to the productivity of labor minus the rental rate times the capital-to-labor ratio. Rearranging, we have

$$w = \frac{1}{L}(Y - rK) = \frac{D_c}{L},$$

where the last equality says that the average wage equals the demand for consumer goods (taken *à la* Reisman as an expenditure of money) divided by the supply of labor. The last equality follows by assuming all wage income is consumed, and is similar to Reisman's equation 6 (p. 621). The difference between Reisman's analysis and the one given here is that the above analysis is (a) founded on defensible economic reasoning and (b) far richer in economic content. In addition to being a theory of production, it can easily be extended into a theory of growth and growth accounting, for example.

[7]Oddly, Reisman accepts that factor prices are determined by marginal products (p. 209), but then rejects the marginal productivity theory (p. 666).

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> by the loss of utility of the product that follows from the absence of the part, the sum of the values of the parts must far exceed the value of the product. (p. 667)

Reisman's error is to believe that marginal-productivity theory applies to each industry and to each firm individually, when in actuality it applies to the economic system as a whole. Thus, the value of a steering wheel (or, more accurately, the plastic and leather which make up a steering wheel) is determined by the utility of the *least* valuable product or service one would have to give up if the requisite plastic and leather were absent. The least value, i.e., the marginal value, of the plastic and leather is not in its use as a steering wheel but in some other use elsewhere in the economy. Suppose an automobile manufacturer needed to purchase an additional steering wheel. To do so would have to draw plastic and leather away from other areas of the economy. Assuming competitive markets, the price the automobile manufacturer would have to pay would just equal the value of the leather and plastic in alternative uses. Leather and plastic have value in alternative uses because they are productive in alternative uses (they produce revenue). The value of the steering wheel is thus equal to its (economy-wide) marginal revenue product (also called the marginal value product).

When neoclassical economists write down and solve a general equilibrium model of the economy, they are representing the above analysis mathematically. Rothbard (1962, pp. 406–9, and passim) gives an equivalent verbal explanation. Rothbard writes, for example, that "The price of a unit of any factor will, as we have seen, be established in the market as equal to its discounted marginal value product. This will be the DMVP as determined by the *general schedule including all the various uses to which it can be put*" (p. 407, italics added).[8]

[8]It is not hard to see how Reisman was misled. Most microeconomics texts discuss only how a firm chooses the quantity of each factor to employ on the

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Reisman's method of explaining factor prices is to refer to their cost of production. In fact, Reisman argues that the price of any manufactured good is determined in the "first instance" by its cost of production. For many purposes, such partial equilibrium reasoning is perfectly acceptable. It is important to remember, however, that all "costs of production" are ultimately opportunity costs (which means all costs are ultimately subjective). From a general-equilibrium standpoint, the cost of an automobile is the value of the dishwasher, lawnmower, and refrigerator one could have had if one had used the resources necessary to make an automobile in their alternative employments. In a free market (absent major externalities) the money "cost" of an automobile exactly represents the value of goods foregone by the automobile's production. It was Mises's great insight that only free-market prices could accurately represent the value of goods foregone, and that without such prices, rational economic calculation is impossible.

In principle, Reisman understands the above analysis, but because he rejects marginal productivity theory and also the notion of opportunity cost, he is unable to express these insights in a succinct manner.[9] Thus, he notes that, ultimately, all prices are determined by demand and supply, but this leaves open what determines supply. Only once does Reisman tell us that supply curves are determined in general equilibrium by competing demands (and he seems to restrict this case

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basis of a given price. In this partial equilibrium presentation, it is more correct to think of the price of a factor "determining" the marginal product than the other way around. Most texts leave general-equilibrium type reasoning for advanced courses, a decision which can lead to confusion. Rothbard (1962) presents both the partial- and general-equilibrium perspectives.

[9]The phrase "cost of production determines price in the *first instance*" is misleading. Whether money costs determine prices or prices determine money costs is not a question of time but of perspective. For some questions, such as analyzing the effects of a rent control or an increase in demand, the partial-equilibrium perspective is convenient and appropriate. For other questions, particularly deep questions about the nature of prices and costs, only a general-equilibrium perspective will suffice.

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to upward sloping supply curves, see p. 165). Instead of using the concept of opportunity cost, Reisman is forced to bring back the classical device of separating goods into reproducible and non-reproducible categories (manufactured goods being an example of the former and Manet paintings an example of the latter). Thus, we have not one but several theories of price depending on the category of good. Costs, in a similar manner, are said to have a "direct" influence on the price of some goods, but only an "indirect" influence on the price of other goods, and so forth. This expansion of price theories and artificial categorization of goods is unsatisfactory, especially when the neoclassical or Austrian theory is available. Simply put, all prices are determined by demand and opportunity cost or, equivalently, all prices are determined by preferences and production functions.[10]

At first, I found Reisman's failure to discuss the subjectivity of cost and his closely related abandonment of opportunity cost puzzling. Other choices were also puzzling. For instance, Reisman tends to work in terms of money prices instead of relative prices, and money rates of return instead of goods rates of return.[11] Why? Is Reisman trying to banish subjective and unobservable elements like opportunity costs from economics in favor of objective and observable elements like money costs and money rates of return? If this is the explanation for the abandonment of subjective-cost theory, expectations,

[10]Opportunity cost is a function of technologies or production functions. The formulation in the text assumes competitive markets but institutions can also affect prices.

[11]At several points, for example, Reisman analyzes an issue by assuming money is held constant, and then re-analyzes the same issue by assuming the money supply is increased or decreased. These re-analyses can be tedious. Reisman's theory of profit and interest is also a monetary theory; he wishes to explain the difference between total monetary business receipts and total monetary business expenditures. Reisman rejects the time-preference theory of interest primarily because it explains a rate of return in terms of goods. I suspect, but have not shown, that most of Reisman's criticisms of the time preference theory are a result of not fully tracing through the implications of a given rate of return in the goods market to other markets in the economy.

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and opportunity cost, it is unfortunate. I am in favor of developing testable theories with observable implications, but one can't make progress in this direction by ignoring the essential fact that economics *does* deal with *human action*.[12,13] Progress comes only when we face the difficulties inherent in human action and devise, as best we can, methods for overcoming these difficulties.

Macroeconomics

Like the classicals, Reisman focuses his analysis on the long run. In his discussion of wages, for example, Reisman focuses exclusively on the average wage and on the factors accounting for the growth in wages over time. Very little time is spent discussing wages in different industries or at different times across business-cycle frequencies. To explain long-run wage growth, Reisman introduces and explains what in all essentials is the Solow (1957) model. Reisman's explanation is verbal rather than mathematical, and is well done. In Solow's (1957) model, technology enters the production function as a multiplying factor which raises the productivity of the *current* capital and labor stock, i.e., $Y = A \times F(K,L)$, where A denotes technology. Reisman's model differs from this in assuming that (a) technology is embodied in capital, and (b) that as a result, returns to capital are (can be) constant. Technology does not raise the productivity of some homogeneous lump of stuff called K. New technology is inseparable from new forms of capital. Growth is the process of substituting steel for iron, titanium for steel and so on. Reisman's discussion in this section is enlightening and well worth reading.[14] After a long period of quiescence, the theory of growth

[12]Recall that Reisman rejects Mises's description of economics as the science of human action, preferring a definition in terms of the production and distribution of wealth (see note 1 above).

[13]It is worth emphasizing that there is no contradiction between objective value theory in ethics and subjective value in economics. The two theories deal with entirely different questions and have no bearing whatsoever on each other. See, for example, Rothbard (1962, pp. 63–64), and Tabarrok (1990).

[14]As usual, with the exception of Samuelson and Nordhaus's principles

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has reclaimed the center stage of the macroeconomics literature, and Reisman's analysis reads as quite modern in flavor. Other highlights in the macroeconomics section of *Capitalism* include a discussion of Say's law which is very good, if somewhat long and tedious.

Most of *Capitalism*'s macroeconomics section is given over to a lengthy discussion of Reisman's theory of long-run profit or interest, which is built upon a re-conceptualization of the national income accounts. Reisman's discussion of the national income accounts is very similar to that of Skousen (1990), who bases his theory on Rothbard (1962), Hayek (1935), and others in the Austrian tradition. For example, Reisman writes that

> the contemporary concept of GNP is not only, in actuality, a highly netted-product concept, but it goes so far as to seek to obliterate both the production and the productive consumption of the so-called intermediate products. (p. 678)

While Skousen (1990, p. 188) writes,

> the gross private investment figure in GNP is not really a gross number after all. It is actually a net measure and purposely excludes "intermediate goods" that are purchased to be used as inputs in producing other goods and services.

Rothbard (1962, p. 343) agrees, noting,

> Current "gross" figures, however, are the height of illogicality, because they are not gross at all, but only partly gross. They only include gross purchases by capitalists of durable capital goods.... [but] it is inadmissible

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textbook, which Reisman cites incessantly and negatively, he appears unaware of neoclassical economics. Solow (1960) published a model with technology embodied in capital a scant three years after his classic paper on growth. Hulten (1992) cites the modern literature and assesses the evidence for and against the embodiment hypothesis. Modern theories of growth are surveyed in Barro and Salai-i-Martin (1995).

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> to leave the consumption of nondurable capital goods out of the investment picture.

Reisman, Rothbard, and Skousen also agree that it is primarily gross savings by capitalists which maintains the capital structure. To prove this point, Reisman (p. 686) asks us to assume

> that businessmen and capitalists, who sell their goods and services, use the full amount of their sales receipts to make purchases for their own consumption.... In such a case, there would simply be no source of a demand either for capital goods or for labor by business firms.... What would happen under such conditions is that the division of labor would revert to the most primitive level.

Rothbard's (1962, p. 341) discussion is similar. He asks us to suppose

> that the capitalists decide to break up the smooth flow of the ERE by spending all of the 100 ounces for their own consumption rather than investing the 95 ounces. It is evident that the entire market-born production structure would be destroyed....[The] economy would revert to barbarism, with the employment of only the shortest and most primitive production processes.

Despite the close connection between Reisman's theory of aggregate accounting and that put forth by Rothbard and greatly elaborated and extended by Skousen (1990), there is only a footnote reference to Skousen and no references at all to Rothbard.[15] Instead, Reisman cites as his inspiration Adam Smith and John Stuart Mill. The problem is not primarily a failure to reference predecessors. The problem is that Reisman's discussion mostly recounts earlier work in the Austrian tradition without building much upon that work.[16]

[15]Rothbard (1962) is referenced elsewhere in *Capitalism*.

[16]To be sure, to the extent that *Capitalism* is understood as a textbook, covering old ground is fully appropriate.

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Indeed, in many respects, Skousen's (1990) analysis is more rewarding. Skousen, for example, provides estimates of U.S. national income using the correct concepts of gross investment, gross savings, and so forth. Skousen's review of the literature on aggregate income accounting is comprehensive and useful. He points out, for example, how tools like Leontief's input and output tables can be used to develop better measures of the national accounts. Unfortunately, few Austrians have an empirical bent, and Skousen's (1990) estimates are only cursory. Real progress will occur on these issues only when Austrians (a) actually use their theory to improve the national income accounts, and (b) show how the improved accounts help us understand growth, business cycles, and other issues in macroeconomics.

Policy

Capitalism is much closer in style to Mises's *Human Action* or *Socialism* than it is to Rothbard's *Man, Economy, and State*, which is to say that the text is punctuated with applications, historical observations, and analyses of policy, rather than being a single, sustained praxeological argument. Reisman's analyses of policy are skillful both in terms of economics and rhetoric. As an example of rhetoric:

> The environmental movement maintains that science and technology cannot be relied upon to build a safe atomic power plant, to produce a pesticide that is safe, or even to bake a loaf of bread that is safe, if that loaf of bread contains chemical preservatives. When it comes to global warming, however, it turns out that there is one area in which the environmental movement displays the most breathtaking confidence in the reliability of science and technology, an area in which, until recently, no one—not even the staunchest supporters of science and technology—had ever thought to assert very much confidence at all. The one thing, the environmental movement holds, that science and technology can do so well that we are entitled to have

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> unlimited confidence in them is *forecast the weather*—for the next one hundred years! (p. 88)

It might seem odd that a book on economics should devote considerable space to an attack on environmentalism, but Reisman argues quite convincingly that environmentalism is to our time what socialism was to Mises's.

Reisman's analysis of socialized medicine is also worth quoting:

> In what is perhaps the supreme irony of the system, in efforts to control costs, the government ends up actually *opposing advances in medical technology.* It comes to regard such procedures as the implantation of artificial hearts as a major threat to its budget... In addition, in further cost-containment procedures, the government begins to restrict or prohibit whole categories of procedures, from cosmetic surgery to bypass operations.... Thus, people who under private medicine could have obtained such procedures by spending their own money for them are denied the ability to obtain them. They are denied this ability because taxes to pay for the medical care of others, and simply to squander, drain them of the necessary financial resources.... Thus it should not be surprising that under socialized medicine in Great Britain, for example, bypass operations are made difficult to obtain for people over fifty-five years of age, and an elderly person who breaks a hip is likely to die before being able to obtain corrective surgery. (p. 149)

Other aspects of *Capitalism* I will only mention briefly include a defense of the gold standard, a critique of anti-trust laws, and an attack on Keynesian economics. The latter is well done although somewhat dated. Regretfully, *Capitalism* has nothing to say about issues in information economics like moral hazard, adverse selection, signaling, and so forth. In the right hands these ideas constitute a strong critique of the market (although not necessarily a defense of the state). Joseph Stiglitz's (1994) book *Whither Socialism?* is today

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the cutting edge of market critiques, at least among economists. A capitalist manifesto for the twenty-first century will have to take up new Keynesian concerns.

Conclusion

In conclusion, *Capitalism*'s treatment of the division of labor, price controls, economic calculation, and Say's law are likely to remain definitive for a long time. The sheer size of *Capitalism* makes it a superb reference work; there is hardly a critique of free-market economics which is not here analyzed and demolished. I would enjoy using much of *Capitalism* as a text in an advanced undergraduate economics class. Reisman's resurrection of the classical approach to macroeconomics, however, is fundamentally misguided. Austrian economics provides valuable insights into entrepreneurship, the market process, and welfare economics (insights which, for the most part, Reisman does not avail himself of). Austrian capital theory and national income accounting could perhaps form the foundation of a revised Austrian and neoclassical macroeconomics. But on other issues, like growth theory, financial economics, and pricing in general equilibrium, Austrian economics has no well-developed body of thought. On these issues, Austrians are well advised to adopt the neoclassical approach rather than to attempt a resurrection of classical thinking.

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Austrian Economics in America: The Migration of a Tradition. By Karen I. Vaughn. *Historical Perspectives on Modern Economics.* New York and Melbourne: Cambridge University Press, 1994. Pp. xiv, 198. $49.95. ISBN 0-521-44552-3.

Some books are distinguished by inaccuracies, stilted or idiosyncratic interpretations or by a simple lack of scholarship. These are simply forgettable with "the only bad review being only an obituary." Others are this and plenty more—they do actual and discernible damage to the subject they seek to treat. Such is the case with this book that seeks to "clear away the underbrush so that the hoped-for revolution [an Austrian revolution] can have a more hospitable soil in which to take root." Not only does it not clear "the underbrush" (a silly and inapt metaphor), Vaughn's book shows little appreciation for the development of Austrian economics in the United States or anywhere else, or for its present or future status. Austrian economics fortunately is made of sterner stuff and will survive this treatment. Vaughn does serious damage to fair interpretation nonetheless. In my view (and I am more a sympathizer than a card-carrying Austrian), her stance, if it is really taken seriously, builds a catafalque for this critically important area of economic thought.

The title of this book, if not the content, suggests three possibly important issues that Vaughn might have considered. First, what is the nature of the tradition, history, and economic theory of the Austrian school? Second, does Austrian economics stand as a separate and coherent theory today? Finally, has an expanded neoclassical analysis paralleled or "absorbed" Austrian notions of ignorance,

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time, the entrepreneur, and knowledge requirements? This book fails to contribute in any meaningful way to any of these matters.

The historiography of Austrian thought and the "tradition" of which Professor Vaughn speaks is reduced to a few well-known figures and ideas (chapters 2–5) flavored only with Vaughn's stilted interpretations. I find both the older and the more modern writers of the Austrian school to be critically misrepresented in this account.

Consider the older tradition, whose font was the triumvirate of Carl Menger, Friedrich von Wieser, and Eugen von Böhm-Bawerk. Vaughn devotes two chapters to Menger and "Mengerian themes" (found in Hayek in particular) in a summary of well-known literature. Her treatment boils down to an assertion that Menger's themes of knowledge, ignorance, time, and process were the *singular* essences of Austrian economics. Wieser and Böhm-Bawerk are depicted as not having "a Mengerian vision" (p. 7). This is utter nonsense. Vaughn believes that Menger's "themes" were resurrected in the socialist calculation debates between Ludwig von Mises and the "neoclassicals." She should consider Wieser's *Natural Value*, his *Social Economics,* and the writings of Böhm-Bawerk more closely.

In *Natural Value* (1883), Wieser outlines and then destroys the theoretical case for socialism by directly confronting the argument that profits and interests are necessary payments but not necessary receipts (the socialist argument). I further suggest that her dismissal of Wieser (see pp. 33–35) as a closet neoclassical is preposterous when one reads his *Social Economics* (completed in 1914 but not published until after World War I). In it Wieser made giant strides toward the development of a number of contemporary Austrian themes, including (a) the emergence of institutions as the result of spontaneous order; (b) the depiction of competition as a rivalrous process opposed to (simply) a static model; and (c) the key role of the entrepreneur in the economic process. The integration of economic theory into a theory of institutional change, a clear extension of Menger's work on the development of money, is perhaps the most

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important of these genuine achievements, especially given the concerns of some contemporary Austrian and neo-institutional economists.[1]

The dismissal of Wieser and Böhm-Bawerk as Austrians of the older school is, unfortunately, only one example of Vaughn's serious lapse of accuracy and incompleteness.[2] Her spotty and sparse attention to the Austrian tradition in America is an even more glaring and disastrous omission. While Mises, who was Böhm-Bawerk's (not Menger's) student, and Hayek get some summary treatment, it is as if economists such as Joseph Schumpeter, Gottfried Haberler, Oskar Morgenstern, Fritz Machlup, and Paul Rosenstein-Rodan did not even exist, let alone constitute an inextricable part of the "tradition." A footnote or two (see p. 36 n. 22) and a blanket dismissal of these game players as "neoclassical sympathizers" just doesn't get to the core of these critical contributions to the Austrian way of thinking.

I know, for example, that Oskar Morgenstern considered himself, first, last, and always, a direct descendant of and a worker in the fields of the Austrian tradition. In 1969, when he visited Texas A&M for several long stints, Morgenstern lectured to my "thought" classes on Austrian economics and its development in America. My yellowing notes reveal that Morgenstern had a clear grounding in Mengerian principles and that grounding was a *vital* part of Morgenstern's research at the time (on stock market prices, I believe). He had my class reading his *Accuracy of Economic Observations*, written in 1950 (second edition 1963). While purporting to recount "the Austrian tradition,"

[1]Böhm-Bawerk's extension of Menger's subjective exchange theory and his Mengerian discussion of the process of exchange is yet another obvious lapse in Vaughn's account.

[2]Her interpretation of the *methodenstreit* ignores the impact of the iron-fisted system of university administration in Germany, although Vaughn provides the shallow statement that Schmoller "managed to keep Mengerians out of academic positions in Germany" (p. 36) without further explanation. Where, in addition, is an analysis of early Austrian influences in England at the hands of William Smart (see his *Theory of Value*, 1891) and others in Vaughn's account of the "migration of a tradition"?

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Vaughn virtually ignores the work which most clearly explains why the all-too-frequent misuse of econometrics should be taken with a grain of salt—a very modern Austrian predilection.

Vaughn's non-treatment of serious scholars whose works flow into both Austrian and non-Austrian mainstreams reflects a more basic problem in her entire treatment. Her treatment is itself based on an idiosyncratic interpretation of what Austrian economics or neoclassical economics (for that matter) is.[3] The limited perspective is furthered by her very interpretation of Austrian economics as essentially (only?) the economics of time and ignorance. Great attention is lavished (pp. 92–178) on this *idée fixe* which occupies almost half of the book. At the risk of trite paraphrase, this view may be summarized: Since we cannot know what we cannot know (the future), and since econometrics is of no help, predictive models are useless or are "severely limited." This, at least to this reviewer's mind, is the core problem with the book, and the reason why it damages the topic it seeks to venerate.

Ludwig Lachmann and his coven, including the hermeneuticians, have driven a wing of the Austrian movement to an anti-scientific theological view of "what Austrian economics is." Radical views of knowledge and knowledge requirements force a retreat to deconstructive anti-science with which Vaughn flirts. (On this point I am in full agreement with the late Professor Murray Rothbard.) Pursuit of this Holy Grail will leave Austrian economics and any other branch of thought that embraces it exactly nowhere.[4] Hermeneutics is, root and branch, a surrealist stupidity reminiscent of the Roman Church's

[3]On page 9 of her book, for example, Vaughn virtually equates neoclassical economics with constrained maximization. She also has trouble with possible differences between "mainstream economics" and "neoclassical economics." But brushing aside the differences, she alleges that these constitute a "program that explains all human action as variations on constrained maximization where preferences are considered to be given, well-ordered, and stable, and where there is widespread knowledge of constraints." An opposing view is contained in recent works by Douglas North, Gary Becker, and William Baumol.

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attacks on science or the fundamentalist attack on biology. There is no "middle-of-the-road" in this war that does not, of necessity, spit on science and scientific principles. Perhaps the romance with hermeneutics or its variations might end in the creation of a magic decoder ring.[5]

Large chunks of this book are devoted to sterile and unnecessary attempts on the part of some Austrians, including the author, to "find themselves" and define a new paradigm. It would be facile to dismiss this book as a patchy-idiosyncratic summary of some Austrian ideas, because the errors and lapses go much deeper than that. Even though there is little new in the book, the interpretation she provides is a call to *nihilism*. From that undiscovered country, as Hamlet noted in another context, no traveler returns. When the direction of economic activity cannot be predicted or predicated upon some solid behavioral responses, markets do not matter, and their defense is irrelevant much as they are at the hands of the rational mechanics that the Austrians so fondly (and correctly) assail.

Fortunately, Austrian endeavors and prospects are more solid and promising than Vaughn proposes. Rather than simply being the "economics of time and ignorance," Austrian concerns bridge and intimately connect with a number of areas with a complexity that belies

[4]Vaughn does not note that these movements are taking place elsewhere across the spectrum of contemporary economics. A contemporary "Veblenian" approach is taken, for example, in recent works by Malcolm Rutherford and Lars Magnusson in which radical knowledge requirements demand a serious modification or negation of predictive economic theory. It is equally non-scientific in these manifestations.

[5]Her proclivities for moral theology are revealed when she opines that a role of Austrian economics (and Austrian economists) might be to provide a "philosophical conscience of the economics profession." Continuing, she notes that "this may not be a bad thing: Lord knows, economics needs some kind of conscience, but it is also true that most people are not particularly fond of having a conscience, despite the fact that they may be better off with one than without" (p. 167). Does Vaughn pretend to know what conscience is or what matters should be matters of conscience? Perhaps economists are not particularly fond of having half-baked theology served up to them either.

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this book's simplistic treatment. Indeed, other reviews of this book (by Austrians) have noted some of these areas. Fortunately, it represents a small, angst-ridden wing of the Austrian movement—those with a penchant for internecine methodological warfare—and not its more vital quarters. A number of young Austrians really *do* economics and interesting economics at that. Austrian-flavored analyses of monetary theory, macroeconomic and growth theory, antitrust, and law and economics are being promulgated by writers such as George Selgin, Larry White and Don Boudreaux, to mention only a few. And Israel Kirzner continues to enlarge our knowledge and analysis of the role of the entrepreneur. Perhaps someday soon, an Austrian will provide a work that reveals the real complexity of the area without the Heraclitan highjinks and theological overtones that pervade this treatment.

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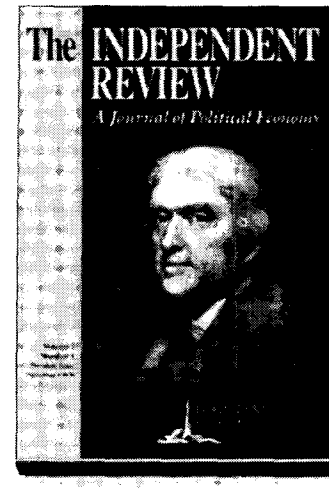

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